345

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Airline	GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A Tel. Rec.	345-2
Craftsmen	CA-11	345-3
Crosley	Chassis R-102-1 Prod. Chg. Bul. 178	345-1
Dewald	K-412	345-4
Dumont	Chassis RA-354 "Beachcomber"	345-5
Firestone	13-G-168, 13-G-169, 13-G-172, 13-G-173 (Code 334-4-AS60A) Tel. Rec. Prod. Chg. Bul. 178	345-1
Magnavox	Chassis AMP-150	345-6
Magnecord	F-35B Recorder	345-7
Motorola	BKA6T	345-8
Motorola	Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, MGA, Y21T34B, BA, M, MA, Y24K13B, M, Y24T5BG, MG, 21K35B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, MGA, 21T34B, BA, M, MA, 24K13B, M, 24T5BG, MG (Ch. TS-537, Y, TTS-537, Y, WTS-537, Y) Tel. Rec.	345-9
Pedersen	AFM-6A	345-10
Philco	E1362, E1762, E1764	345-11
RCA Victor	7-BX-8J, 7-BX-8L (Ch. RC-1162)	345-12
RCA Victor	21-D-7174, U, 21-D-7175, U, 21-D-7176, U, 21-D-7177, U, 21-D-7215, U, 21-D-7216, U, 21-D-7217, U, 21-D-7235, U, 21-D-7237, U, 24-D-7295, U, 24-D-7296, U, 24-D-7297, U, 24-D-7315, U, 24-D-7317, U, 24-T-7272, U, 24-T-7275, U, 24-T-7277, U (Ch. KCS103A, B, C, D, N, P, R, T) Tel. Rec.	345-13
Raytheon	C-214-B, -M, C-216-B, -M, C-218, M-210-B, -M, UC-213-B, -M, UC-215-B, -M, UC-217-B, -M, UC-219, UM-211-B, -M (Ch. 21T40, 21T41, 21T43, 21T44, 21T45, 21T46) Tel. Rec. Prod. Chg. Bul. 178	345-1
Sherwood	S-1000	345-14
Silvertone	7006, 7007 (Ch. 132.39900)	345-15
Studebaker	AC-2746, AC-2748	345-16
Sylvania	3401 (Ch. 1-612-1)	345-17
Westinghouse	H-562P4, A, H-563P4, A, H-564P4, A, H-565P4 (Ch. V-2268-1, -2, -3, -4)	345-18
Westinghouse	Chassis V-2340-25, V-2341-15, -25, -41, -45, V-2350-204, V-2351-204, -304, -404 Tel. Rec. Prod. Chg. Bul. 178	345-1

Zenith Z1610L - Z1511B - Z1512J ch. 16Z25 345-19 S.
Sentinel U74-01AA-02AA ch. 74 Series.

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 5 IN SET 283

Firestone Models 13-G-168, 13-G-169 , 13-G-172 and 13-G-173 (Codes 334-4-AM57A, 334-4-AS57A) were covered in Photofact Folder 5 — Set 283.

Models 13-G-168, 13-G-169, 13-G-172 and 13-G-173 (Code 334-4-AS60A) are electrically identical to models covered, except for the following changes.

NEW TUNER

A new VHF tuner (Part #25A1129) is used in code 334-4-AS60A. A schematic of the tuner is given on the reverse side.

NEW PICTURE TUBE

A 21AVP4A picture tube is used in models with code 334-4-AS60A.

COMPONENT CHANGES

R26 is increased from 470K to 1Meg.

C31 is omitted.

R27 is omitted.

R22 is decreased from 4000Ω to 3900Ω.

R28 is omitted.

C34 is omitted.

R62 and R63 are omitted and the center arm of R3, vertical hold control, is connected to ground.

R33 is omitted.

R37 is omitted.

A 100K resistor is added from pin 6 of V20 to the 245 voltage source.

R39 is omitted.

R47 is omitted.

C4A, C4B are omitted.

T1, power transformer, is changed to part #53X351.

L20, filter choke, is changed to part #52X95-3.

CIRCUIT CHANGES

Pins 1 and 7 of V6 are grounded.

R26 is connected from C32 to the junction of L12 and C37.

FIRESTONE MODELS 13-G-168, 13-G-169, 13-G-172, 13-G-173 (Code 334-4-AS60A)

PRODUCTION CHANGES
BULLETIN 178

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 4 IN SET 334

Crosley Models JM-8BG, JM-8BK, JM-8BN, JM-86N, JM-8MN and JM-8WE (Ch. R102) were covered in Photofact Folder 4 — Set 334.

Models JM-8BGa, KM-8BKa, KM-8BNa, JM-8GNa, JM-8MNa and JM-8WEa (Ch. R-102-1) are electrically identical to models covered, except for the following change.

ON-OFF SWITCH CHANGED

The on-off switch is now a part of R1, volume control, part #171029-1.

CROSLEY CHASSIS R-102-1

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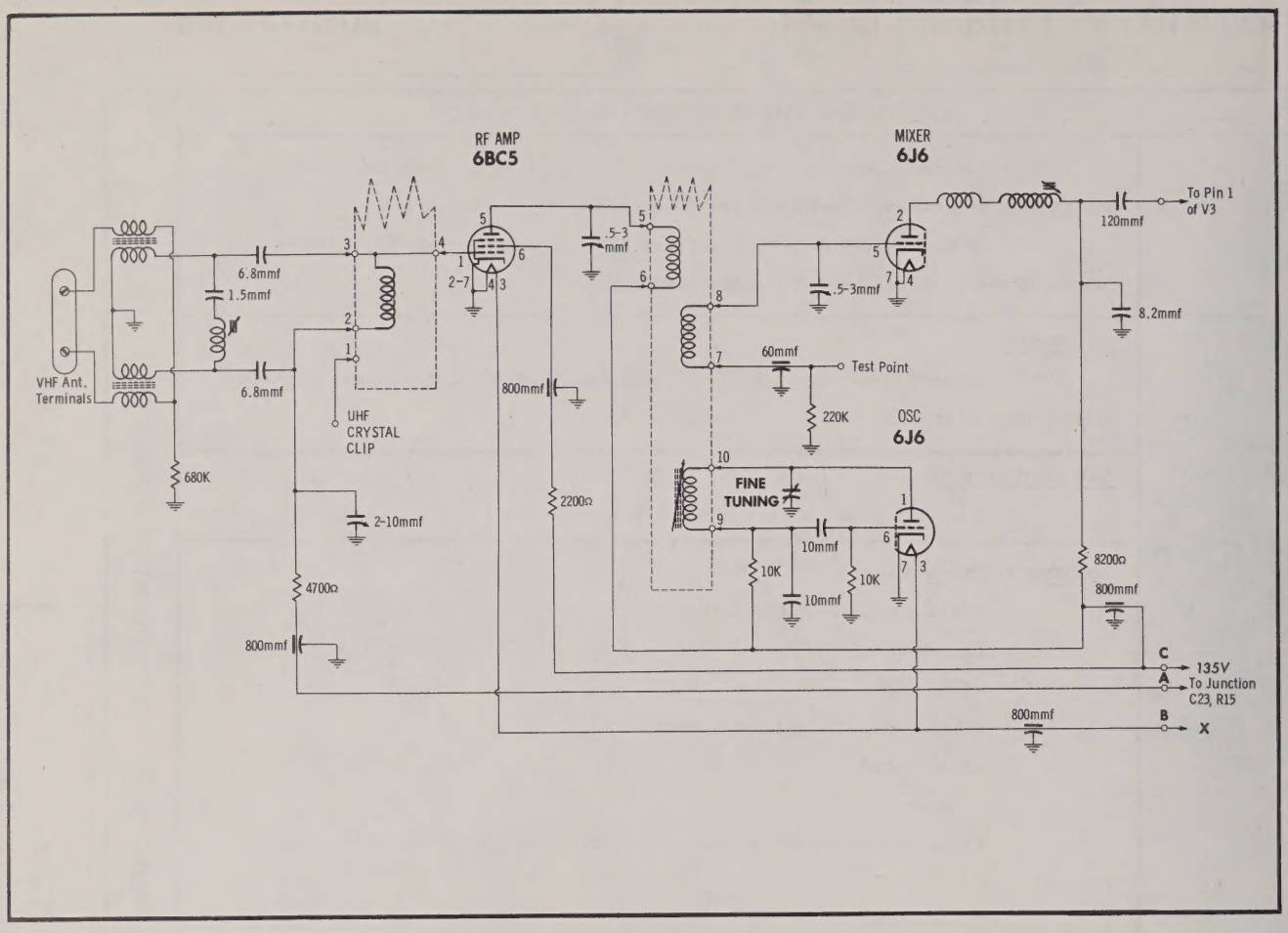
RF AMP
6BC5
MIXER
6J6
OSC
6J6
VHF Ant. Terminals
6.8mmf
1.5mmf
6.8mmf
680K
UHF CRYSTAL CLIP
2-10mmf
4700Ω
800mmf
800mmf
2200Ω
.5-3 mmf
.5-3mmf
60mmf
Test Point
220K
FINE TUNING
10mmf
10K
10K
10mmf
120mmf
To Pin 1 of V3
8.2mmf
8200Ω
800mmf
800mmf
C
135V
A
To Junction C23, R15
B
X

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 18 IN SET 311

WESTINGHOUSE CHASSIS V-2340-25, V-2341-15, -25, -41, -45, V-2350-204, V-2351-204, -304, -404

Westinghouse Models H-916T17A, H-916TU17A, H-919T17A, H-919TU17A, H-920T17A, H-920TU17A, H-921T17A, H-921TU17A, H-924T21A, H-924T21C, H-924TU21C, H-927T21C, H-927TU21C, H-928T21C, H-928TU21C, H-929T21C, H-929TU21C, H-965K21C, H-965KU21C, H-966K21C, H-966KU21C, H-974T21, H-974TU21, H-975T21, H-975TU21, H-976T21, H-976TU21, H-978T17, H-978TU17, H-979T17, H-979TU17, H-980T17 and H-980TU17 (Ch. V-2340-25, V-2341-15, -25, -41, -45, V-2350-204, V-2351-204, -304, -404) were covered in Photofact Folder 18 — Set 311.

The following changes were made during late production.

TO ELIMINATE SHADING ON LEFT SIDE OF RASTER

A .0047MFD @ 1.4KV capacitor is added from pin 10 of V17 to ground.

TO REDUCE VIDEO RINGING

L21 is omitted and is replaced by a buss wire 1 1/8" in length.

FILAMENT SERIES STRING CHANGED

V15, damper, is now the first tube in the filament string followed by V14, horizontal output.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 12 IN SET 327

RAYTHEON MODELS C-214-B, C-214-M, C-216-B, C-216-M, C-218, M-210-B, M-210-M, UC-213-B, UC-213-M, UC-215-B, UC-215-M, UC-217-B, UC-217-M, UC-219, UM-211-B, UM-211-M (Ch. 21T40, 21T41, 21T43, 21T44, 21T45, 21T46)

Raytheon Models C-214-B, C-214-M, C-216-B, C-216-M, C-218, M-210-B, M-210-M, UC-213-B, UC-213-M, UC-215-B, UC-215-M, UC-217-B, UC-217-M, UC-219, UM-211-B and UM-211-M (Ch. 21T40, 21T41, 21T43, 21T44, 21T45, 21T46) were covered in Photofact Folder 12 -Set 327.

The following changes were made during late production.

Code 045

TO ELIMINATE AUDIO BUZZ

R56 is decreased from 470K to 100K.

C71 is omitted.

Code 245

TO INCREASE HORIZONTAL SIZE

V16, damper, is changed from 6AX4GT to 6AU4GT.

The horizontal yoke lead (blue) is disconnected from terminal 2 of T2 and reconnected to terminal 3 of T2.

C101 is omitted.

COMPONENT CHANGES

R108 is increased from 470K to 820K.

R105 is omitted.

R106 is omitted.

R107 is omitted.

C104 is omitted.

PHOTOFACT* Folder

*TRADE MARK

AIRLINE MODELS GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A

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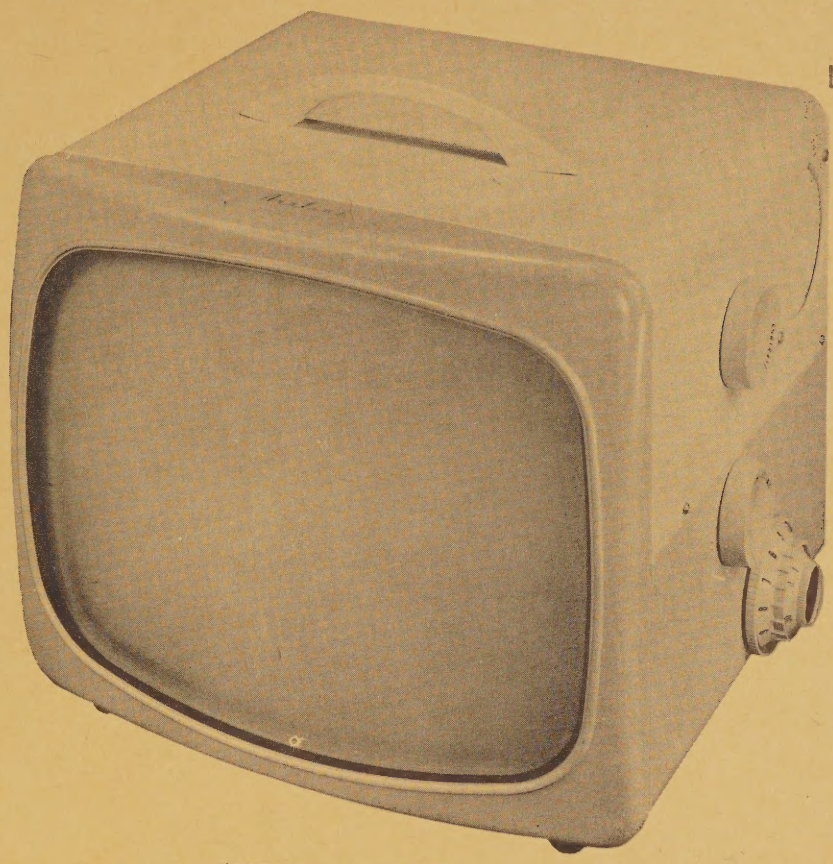
Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



AIRLINE MODEL GRX4125A

TRADE NAME	Airline Models GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Thirteen
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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AIRLINE MODELS GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A

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PHOTOFACT* Folder
*TRADE MARK

AIRLINE MODELS GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A

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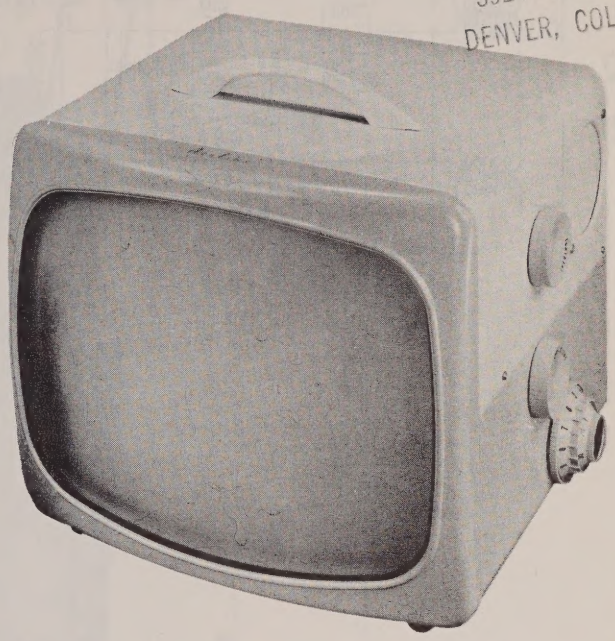
DISASSEMBLY INSTRUCTIONS

CABINET REMOVAL

1. Remove 1 push-on type control knob from side panel.
2. Remove 8 metal screws. Remove rear cover.
3. Disconnect speaker leads.
4. Remove 4 screws , 2 on each side. Remove top of cabinet.

CHASSIS AND PICTURE TUBE REMOVAL

1. Remove top of cabinet as outlined in "Cabinet Removal".
2. Remove 5 push-on type control knobs from side panel.
3. Remove HV lead, picture tube socket, ion trap and centering device.
4. Remove 2 metal screws holding AC interlock.
5. Remove 2 chassis bolts from bottom of cabinet.
6. Remove 2 chassis bolts, one on each side.
7. Using extreme caution remove chassis and picture tube.
8. Remove 2 speaker bolts. Remove speaker.



MODEL
GRX4125A

AIRLINE MODELS GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjust the horizontal hold (located on the rear of the set) until the picture synchronizes horizontally.

FUSES

A 5.5Ω fusible resistor (R75) is used for LV power supply protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

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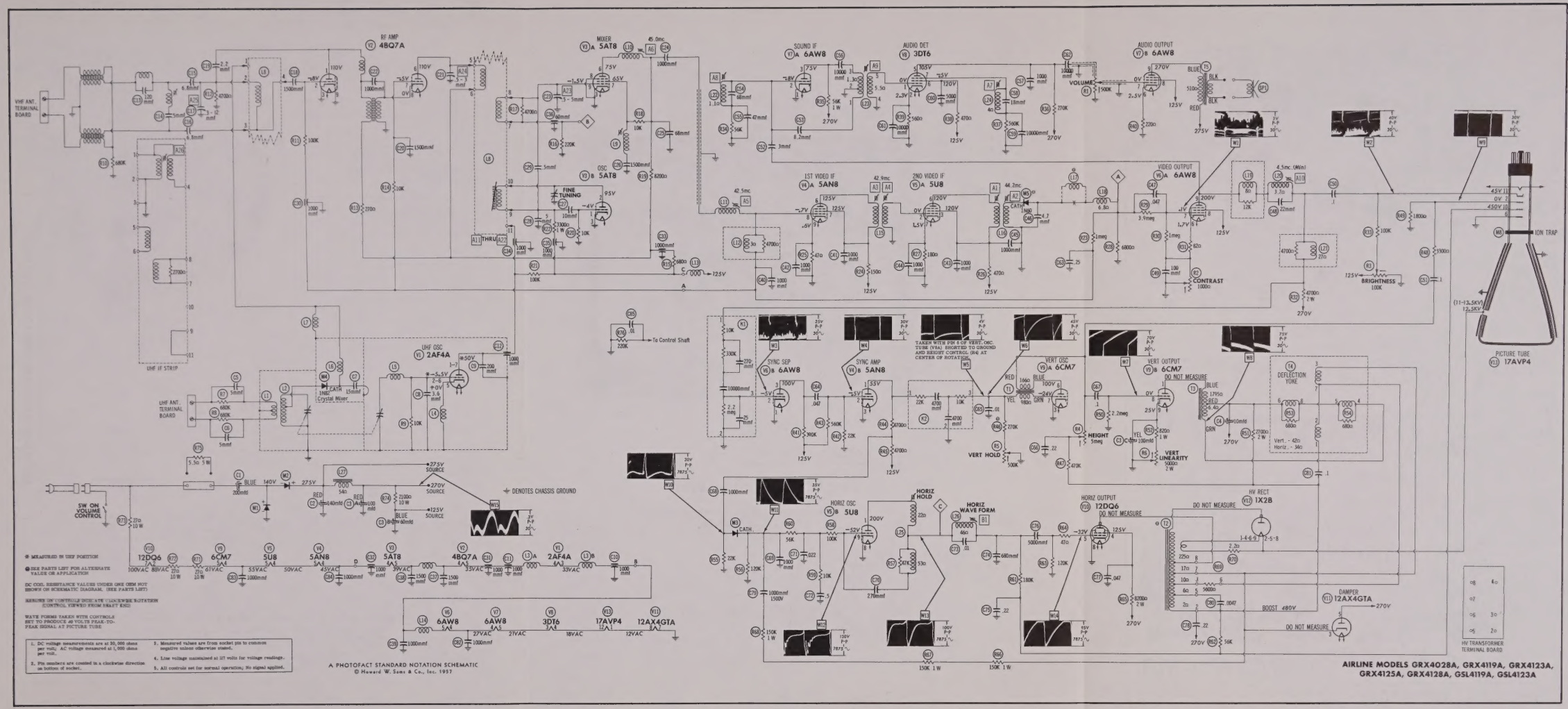

AIRLINE MODELS GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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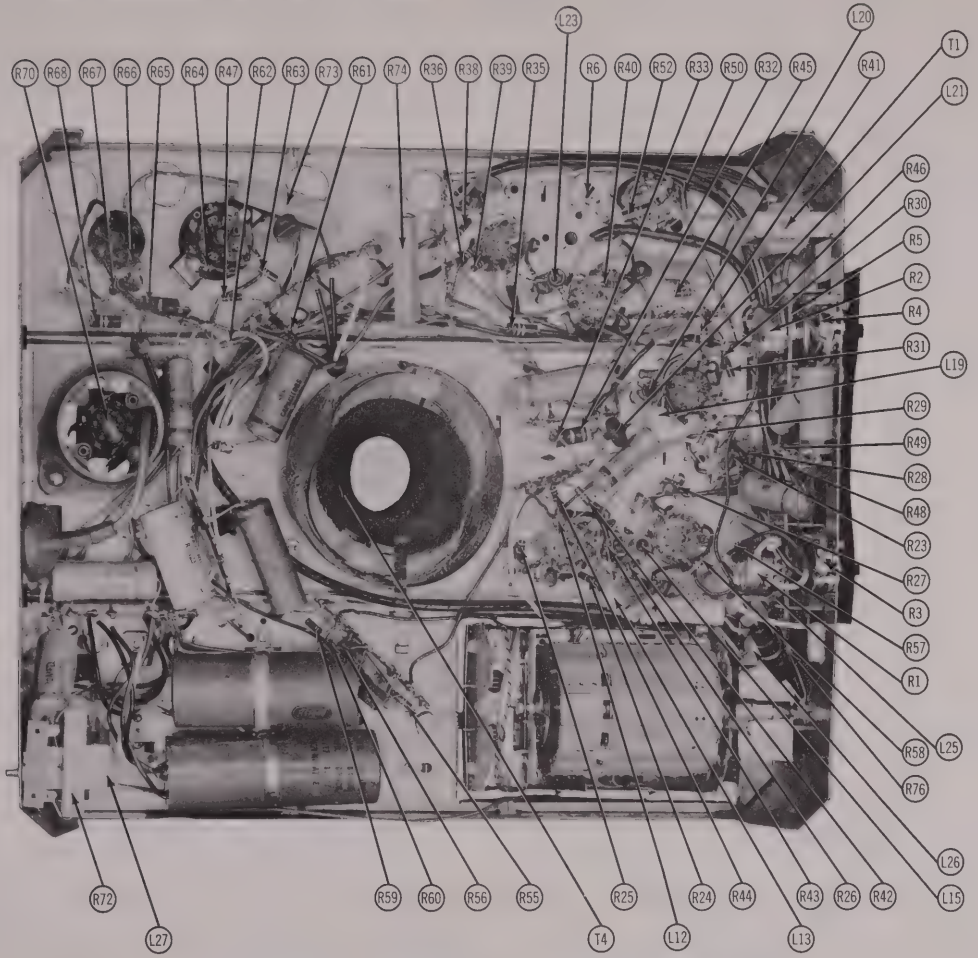

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TUBE PLACEMENT CHART

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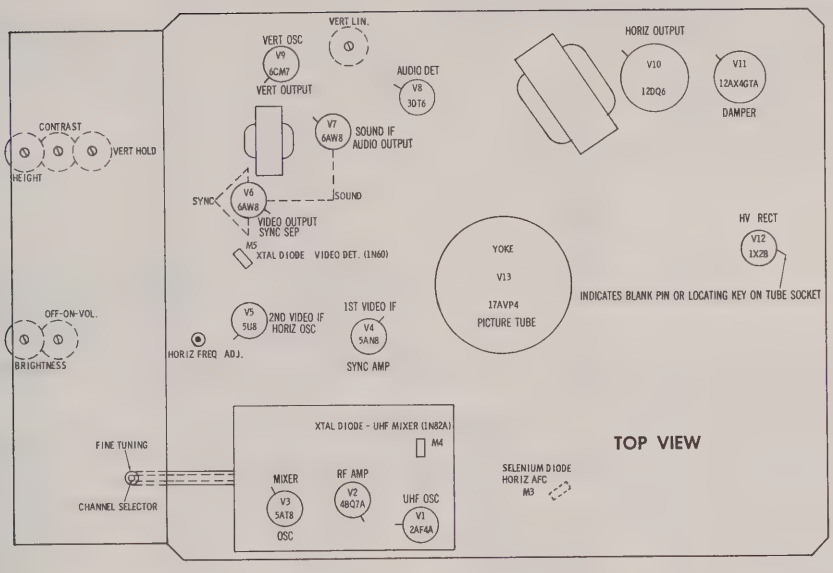


TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

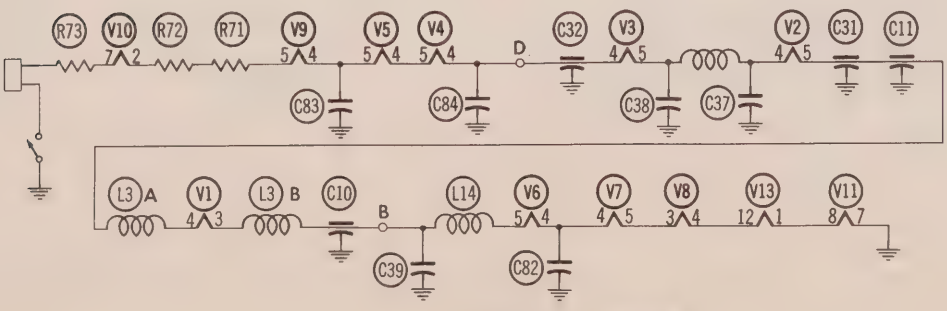
POWER SUPPLY FAILURE
No raster, no sound - Fusible Resistor (R75), Rectifier (M1), (M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, V6, Diode (M5)
No pic, no sound, has snow - V2, V3, V4, (V1 in UHF position)
No pic, has sound, has raster - V6, V13
Has pic, no sound - V7, V8

SYNC FAILURE
No vert. sync - V9
No horiz. sync - Diode (M3)
No vert. or horiz. sync - V6, V4

SWEEP FAILURE
No raster, has sound - V5, V10, V11, V12, V13
No vertical deflection - V9
Poor vert. linearity or foldover - V9
Poor horiz. linearity or foldover - V5, V10, V11
Narrow picture - V5, V10, V11, M1, M2
Vert. off freq. - V9
Horiz. off freq. - M3, V5

Since this receiver employs tubes used in series filament network, an open filament in any tube in this series will cause the set to be inoperative (See circuit below).



SET 345 FOLDER 2

AIRLINE MODELS GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis
Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to the ungrounded side of C63. Connect the positive lead to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to floating tube shield over converter tube (V3). Low side to chassis.	Not used.	44. 2MC (unmod)	Any unused channel.	USE VTVM DC probe to point (A). Common to chassis.	A1, A2	Adjust for maximum deflection. Tune for peak with slugs farthest apart. Use only enough generator output to provide usable indication on VTVM.
2.	"	"	"	42. 9MC (unmod)	"	"	A3, A4	"
3.	"	"	"	42. 5MC (unmod)	"	"	A5	"
4.	"	"	"	45MC (unmod)	"	"	A6	"
5.	"	"	44MC (10MC Swp)	41. 25MC 42. 6MC 45. 75MC	"	Vert. amp. thru 10K to point (A). Low side to chassis.		Check for response similar to Fig. 1 with marker placed as shown. Retouch A1 thru A6 SLIGHTLY to obtain desired response. More than 1 full turn on any adjustment in either direction should not be required.

SOUND IF ALIGNMENT

Turn the set on and tune in a strong TV signal. Adjust A7 for maximum volume. Disconnect antenna and if necessary use an attenuator in series with the antenna and the receiver antenna terminals to provide a weak signal. Adjust A8 and A9 for maximum volume. (A weak signal is necessary to make the peaks distinguishable.)
Connect the antenna directly to the terminals for a strong signal and retouch A7 for maximum volume.

4.5MC TRAP ALIGNMENT

Tune in a TV station and adjust the fine tuning until a 4. 5MC beat pattern appears in the picture. Turn A10 fully counter clockwise, then clockwise until the horizontal scanning lines are again smooth and continuous (beat disappears).

VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211. 25MC 215. 75MC	13	Vert. amp. thru 47K to point (A). Low side to chassis.	A11	Adjust to place sound marker in trap notch as in Fig. 2. Video marker should fall at 50%.
			207MC (10MC Swp)	205. 25MC 209. 75MC	12		A12	
			201MC (10MC Swp)	199. 25MC 203. 75MC	11		A13	
			195MC (10MC Swp)	193. 25MC 197. 75MC	10		A14	
			189MC (10MC Swp)	187. 25MC 191. 75MC	9		A15	
			183MC (10MC Swp)	181. 25MC 185. 75MC	8		A16	
			177MC (10MC Swp)	175. 25MC 179. 75MC	7		A17	
			85MC (10MC Swp)	83. 25MC 87. 75MC	6		A18	
			79MC (10MC Swp)	77. 25MC 81. 75MC	5		A19	
			69MC (10MC Swp)	67. 25MC 71. 75MC	4		A20	
			63MC (10MC Swp)	61. 25MC 65. 75MC	3		A21	
			57MC (10MC Swp)	55. 25MC 59. 75MC	2		A22	

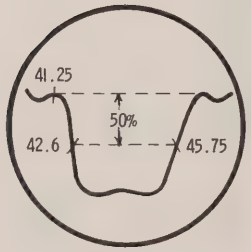


FIG. 1

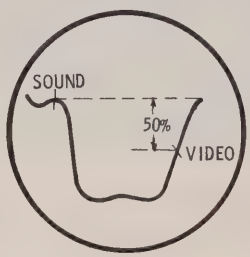


FIG. 2

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ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205. 25MC 209. 75MC	12	Vert. amp. thru 10K to point (B). Low side to chassis.	A23, A24, A25	Adjust for response curve similar to Fig. 3 with markers above 90%.
8.	"	"	213MC (10MC Swp)	211. 25MC 215. 75MC	13	"		Check for response similar to Fig. 3. If markers fall below 70% on any channel, make compromise adjustments of A23, A24 and A25 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199. 25MC 203. 75MC	11			
			195MC (10MC Swp)	193. 25MC 197. 75MC	10			
			189MC (10MC Swp)	187. 25MC 191. 75MC	9			
			183MC (10MC Swp)	181. 25MC 185. 75MC	8			
			177MC (10MC Swp)	175. 25MC 179. 75MC	7			
			85MC (10MC Swp)	83. 25MC 87. 75MC	6			
			79MC (10MC Swp)	77. 25MC 81. 75MC	5			
			69MC (10MC Swp)	67. 25MC 71. 75MC	4			
			63MC (10MC Swp)	61. 25MC 65. 75MC	3			
			57MC (10MC Swp)	55. 25MC 59. 75MC	2			

UHF TUNER ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors	Across UHF antenna terminals with 120Ω in each lead.	569MC (10MC Swp)	567. 25MC 571. 75MC	30	Vert. amp. thru 10K to point (A). Low side to chassis.		Adjust fine tuning for response similar to Fig. 2 with sound marker in trap notch and video marker at 50%. If proper response is not obtained, follow with step 10.
10.	"	"	803MC (10MC Swp)	801. 25MC 805. 75MC	69	Vert. amp. thru detector probe (Fig. 4) to pin 6 (plate) of 1st video IF amp. (V4).	A26	Adjust for maximum amplitude and response similar to Fig. 5. Repeat step 9.

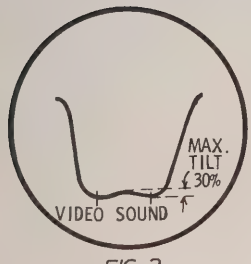


FIG. 3

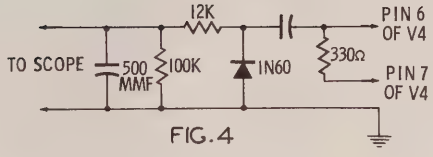


FIG. 4

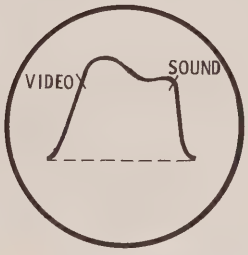


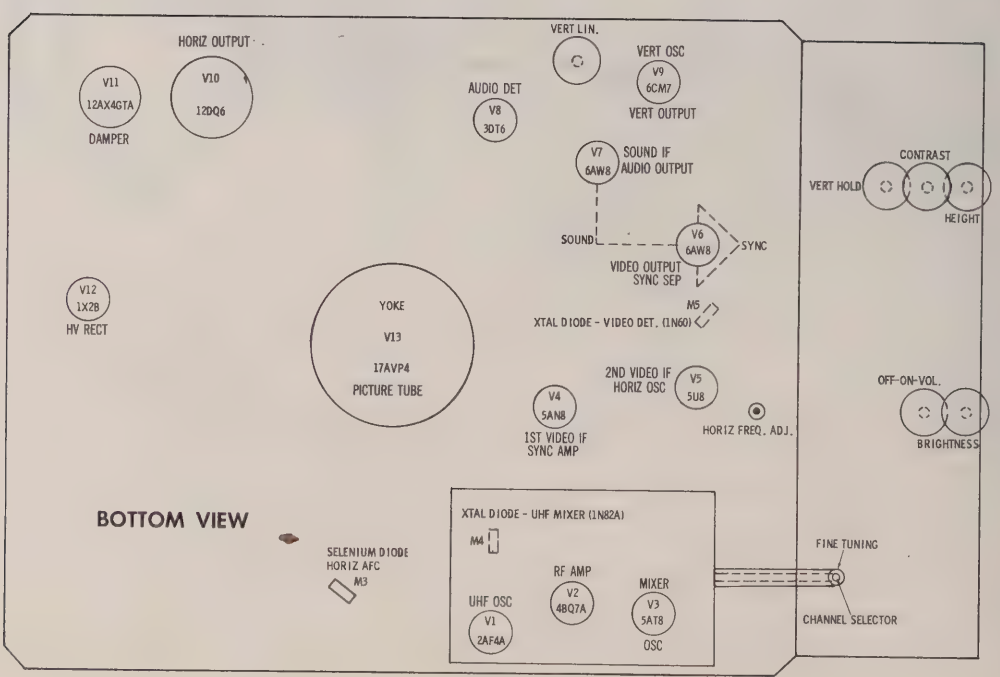
FIG. 5

RESISTANCE MEASUREMENTS

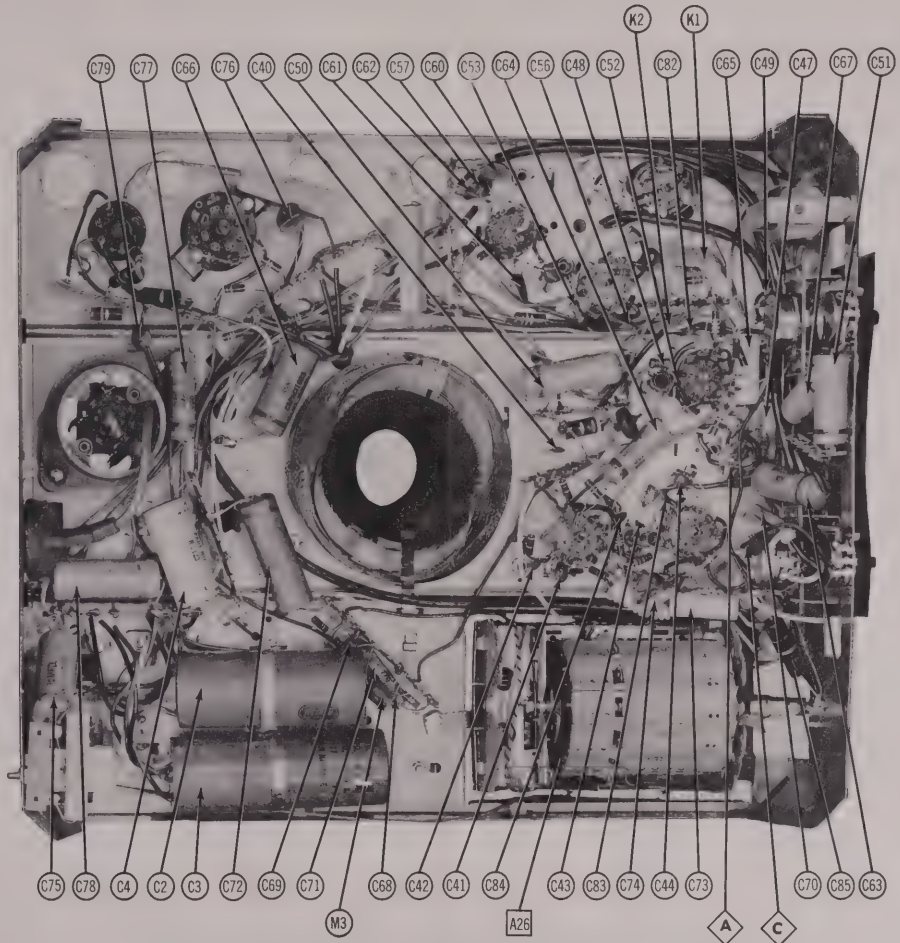
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2AF4A	‡†3.3K	10K	44Ω	46Ω	.1Ω	10K	‡†3.3K		
V2	4BQ7A	†3000Ω	1.2Meg	0Ω	50Ω	46Ω	†2800Ω	1.1Meg	.1Ω	INF
V3	5AT8	10K	†5200Ω	0Ω	55Ω	50Ω	†10K	†20K	0Ω	220K
V4	5AN8	†12K	20K	0Ω	55Ω	60Ω	†2200Ω	†2200Ω	1.1Meg	47Ω
V5	5U8	*180K	.1Ω	†2500Ω	60Ω	65Ω	†2500Ω	180Ω	0Ω	180K
V6	6AW8	0Ω	2.2Meg	†390K	38Ω	44Ω	● 95Ω	900K	†2200Ω	†4700Ω
V7	6AW8	0Ω	56K	†56K	38Ω	32Ω	220Ω	● 500K	†2200Ω	†564Ω
V8	3DT6	5.5Ω	560Ω	32Ω	29Ω	†270K	†2500Ω	560K		
V9	6CM7	*4400Ω	NC	0Ω	60Ω	87Ω	● *1.6Meg	● 440K	2.2Meg	● 2500Ω
V10	12DQ6	NC	114Ω	TP	†8200Ω	120K	NC	125Ω	0Ω	TOP CAP *17Ω
V11	12AX4GTA	NC	NC	300K	NC	†54Ω	NC	0Ω	12Ω	
V12	1X2B	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP *242Ω
V13	17AVP4	12Ω	1800Ω	Pin 6 0Ω	Pin 10 †56K	Pin 11 ● 140K	Pin 12 29Ω			

‡ MEASURED IN UHF POSITION.
† MEASURED FROM OUTPUT OF M2.
* MEASURED FROM PIN 3 OF V11.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

TP TIE POINT
NC NO CONNECTION



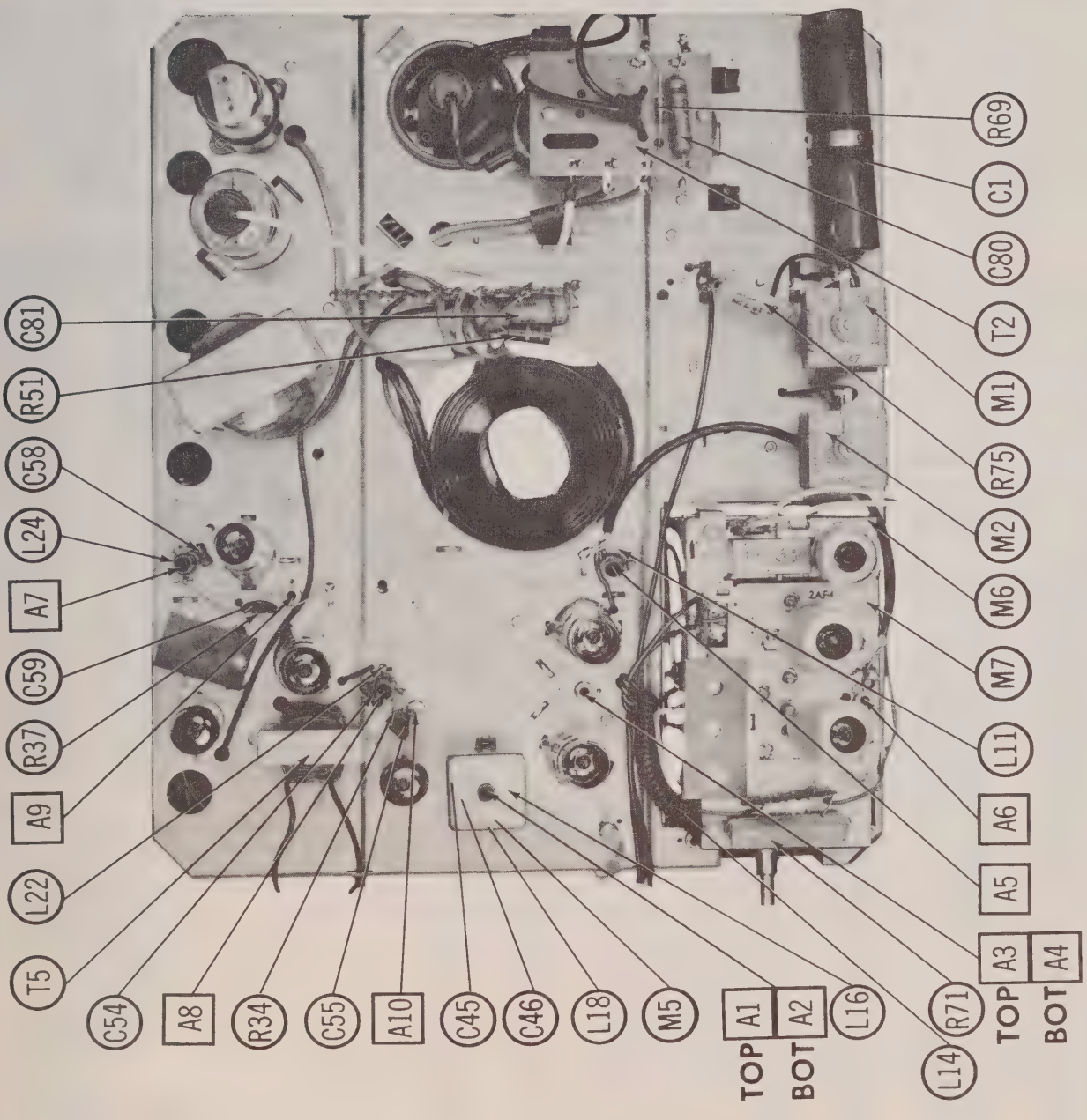
TUBE PLACEMENT CHART



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

DENVER, COLORADO

CHASSIS TOP VIEW



PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	UHF Osc.	2AF4A	
V2	RF Amp.	6BJ7A	
V3	Mixer Osc.	5AT8	
V4	1st Video IF Amp. - Sync Amp.	5AN8	
V5	2nd Video IF Amp. - Horiz. Osc.	5U8	
V6	Video Output-Sync Sep.	6AW8	

ITEM No	USE	TYPE	NOTES
V7	Sound IF Amp. - Audio Output	6AW8	
V8	Audio Detector	3D7G	
V9	Vert. Osc. - Vert. Output	6CM7	
V10	Horiz. Output	12DQ6	
V11	Damper	12AX4GTA	
V12	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	AIRLINE PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V13	17AVP4	17AVP4A ①	17AVP4	17AVP4A ①	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	VOLT	REPLACEMENT DATA AIRLINE PART No	AEROVOX PART No	CORNELL-DUBILIER PART No	MALLORY PART No	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	200	150	R-2128	PR2-100	EZ10399	WS342	TD-200-150	S-150	TVA-1423
C3	140	300	R-2122	PR1-300	EZ10400	WS427		S-300	TVA-1575
C1A	100	300	R-2121	PR3-047	CD0044	WT430		T-353	R2340*
B	60	300			BR-005			MTD-4520	
C	100	50		PR1-100					
C4	10	350	R-2123	PR3550V10	BR1235	TC62	TD-13-350	FM-3513	TVA-1804

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	5		13L-5UA050C							
C6	5		13L-5UA050C							
C7	15									
C8	3.5		13L-5CS8-C							
C9	300		13P-100	61300	D6-201	G020	KD-300	UC-893	SGA-T2	
C10	1000		13M-330EA102Z-03	KF-001	MFT-1000				503C-D1	
C11	1000		13M-230SA102Z-03	KF-001	MFT-1000				503C-D1	
C12	1000		13M-230EA102Z-03	KF-001	MFT-1000				503C-D1	
C13	120		D1-130	DD-121	G044	KD-190	ST-5513	SGA-T12		
C14	5		D1-5	DD-050	G011	KD-5	ST-555	SGA-V5		
C15	6.8		13L-5CS6BC	NPO-S15.8	D6-2S8	G018	TCC-6.8	ST-5568	STCCB-V68	
C16	6.8		13L-5CS6BC	NPO-S15.8	D6-2S8	G018	TCC-6.8	ST-5568	STCCB-V68	
C17	3-13									Note 1
C18	1500		13L-5XA153Z	BPD-0015	DD-152	K071	KD-1500	DC5313	5HK-D15	
C19	2-3		13L-5XA23Z	NPO-S12.3	D6-2S3	G006	TCC-2.3	ST-5523	STCCB-V23	
C20	1500		13L-5XA152Z	BPD-0015	DD-152	K071	KD-1500	DC5313	5HK-D15	
C21	3-3									Note 1
C22	300		13L-5XH302Z	BPD-001	DD-102	K049	KD-1000	DC521	5HK-D1	
C23	5-5									Note 1
C24	1000		13L-5XH302Z	BPD-001	DD-102	K049	KD-1000	DC521	5HK-D1	
C25	68		13L-1ZU68QJ	TCN-68	D6038		TCT-68	UC5468	STCCU-Q68	
C26	1500		13L-5XA152Z	BPD-0015	DD-152	K071	KD-1500	DC5313	5HK-D15	
C27	10		13L-5H010F							
C28	5		13L-5UA050C							
C29	0.5		13K-5U-18		TCZ-R5		TCC-.5		503C-D1	
C30	1000		13M-330EA-102Z	KF-001	MFT-1000				503C-D1	
C31	1000		13M-330EA-102Z	KF-001	MFT-1000				503C-D1	
C32	1000		13M-320EA-102Z	KF-001	MFT-1000				503C-D1	
C33	1000		13M-320EA-102Z	KF-001	MFT-1000				503C-D1	
C34	1000		13M-330EA-102Z	KF-001	MFT-1000				503C-D1	
C35	1000		13M-220EA-102Z	KF-001	MFT-1000				503C-D1	
C36	60		13M-33DQ060J-01							
C37	1500		13L-5XA152Z	BPD-0015	DD-152	K071	KD-1500	DC5313	5HK-D15	
C38	1500		13L-5XA152Z	BPD-0015	DD-152	K071	KD-1500	DC5313	5HK-D15	
C39	1000			BPD-001	DD-102	K049	KD-1000	DC521	5HK-D1	
C40	1000		R-1649	BPD-001	DD-103	K049	KD-1000	DC521	5HK-D1	
C41	1000		R-1649	BPD-001	DD-103	K049	KD-1000	DC521	5HK-D1	
C42	1000		R-1648	BPD-001	DD-103	K049	KD-1000	DC521	5HK-D1	
C43	1000		R-1648	BPD-001	DD-103	K049	KD-1000	DC521	5HK-D1	
C44	1000		R-1649	BPD-001	DD-103	K049	KD-1000	DC521	5HK-D1	
C45	1000		R-1649	BPD-001	DD-102	K049	KD-1000	DC521	5HK-D1	
C46	1-7			BPD-014.7	TCZ-4R7	G011	TCC-4.7	ST-5547	SGA-V5	
C47	.047	200		BPD-05	DF-503	CU15247		GEM-4147	3TM-S47	
C48	22		N-2049	E223	TCZ-22	G024		GP-S3	UC-5423	SGA-G22
C49	100			S1 100	DD-101	G043		GP-100	UC-531	SGA-T1
C50	.1	400		P488N-1	DF-104	CU184P1			GEM-4104	4TM-P1
C51	.1	600		P688N-1	DF-104	CU184P1			GEM-604	6TM-P1
C52	5			NPO-S13	TCZ-5.3	Z007		TCC-5	ST-553	5TCCB-V33
C53	8.2		R-1641	NPO-S18.2		Z038		TCC-8.2		
C54	68			S188		DD-680	G038	TCC-68	UC-5468	SGA-G68
C55	47			S147		DD-470	G037	TCC-47	UC-5447	SGA-G47
C56	10000		N-2062	BPD-01		DD-103	K062	GP-10000	DC511	5HK-S1
C57	1000		R-1649	BPD-001		DD-102	K049	GP-1000	DC521	5HK-D1
C58	18		R-2177	S1 18		TCZ-18	G023	GP-18	UC-5418	SGA-G18
C59	10000		N-2062	BPD-01		DD-103	K062	GP-10000	DC511	5HK-S1
C60	5000		N-2072	BPD-005		DD-502	K060	GP-5000	DC525	5HK-D5
C61	10000		N-2062	BPD-01		DD-103	K062	GP-10000	DC511	5HK-S1
C62	10000		N-2062	BPD-01		DD-103	K062	GP-10000	DC511	5HK-S1
C63	.25	200		P288N-25		CU182P25			GEM-3025	2TM-P25
C64	.047	200		BPD-05		DF-503	CU18247		GEM-4147	2TM-S47
C65	.01	600		BPD-01		DE-103	CU1861		GEM-601	6TM-S1
C66	22	400		P488N-22			CU184P22		GEM-4022	4TM-P22
C67	.1	400		P488N-1		DF-104	CU184P1		GEM-401	4TM-P1
C68	1000		R-1649	BPD-001		DD-103	K049	KD-1000	DC521	5HK-D1
C69	1000		R-1649	BPD-001		DD-102	K049	KD-1000	DC521	5HK-D1
C70	270		R-1639	CM35-271			SW5277			M5-S27
C71	.022	400		BPD-02		DF-203	CU18223		GEM-4223	4TM-S22
C72	5	300		P288N-5			CU182P5		GEM-205	2TM-P5
C73	.01	600		BPD-01		DE-103	CU1861		GEM-61	6TM-S1
C74	680		R-2143	CM20-680			IW2768			M5-368
C75	.22	600		P688N-22			CU182P22		GEM-6022	6TM-P22
C76	5000		N-2072	BPD-005		DD-502	K060		DC525	5HK-D1
C77	.047	400		BPD-05		DF-503	CU18247		GEM-4147	4TM-S47

CAPACITORS (cont)

ITEM No	RATING CAP	VOLT	REPLACEMENT DATA AIRLINE PART No	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C78	22	600		P688N-22		CU184P22		GEM-6022	6TM-P22	
C79	1000	1500	R-1649	BYD-15-1000		V201	HD15-1000	DC9201	20GA-D1	
C80	0047	400		P488N-0047		CU18D47		GEM-4247	4TM-D47	
C81	1	200		P288N-1	DF-104	CU182P1		GEM-201	2TM-P1	
C82	1000			BPD-001	DD-103	K049	KD-1000	DC521	5HK-D1	
C83	1000			BPD-001	DD-103	K049	KD-1000	DC521	5HK-D1	
C84	1000			BPD-001	DD-103	K049	KD-1000	DC521	5HK-D1	
C85	.01	800		BPD-01	D6-103	CU8681		GEM-611	6TM-S1	

Note 1: Part of combined unit of C17, C21 and C23. Part #31B-302.

CONTROLS

ITEM No	RATING RESISTANCE	WATTS	REPLACEMENT DATA AIRLINE PART No	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	1	R-2049	B-50-S	A47-500K-2	Q13-133	U46	Volume
B	Shaft		Not Req.	Not Req.	PS-2	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	Not Req.	SWS-12	T6-1	U38	Attach to R1A
R2A	1000Ω	½	R-2050	AB-505		Q17-108	U3	Contrast
B	Shaft		Not Req.		AK-3	Not Req.	Not Req.	Attach to R2A
R3A	100K	½	R-2051		A47-100K-S	Q11-128		Brightness
B	Shaft		Not Req.		RN-3	TQ		Attach to R3A
R4A	5Meg	½	R-2047	AB-87	A47-5Meg-S	Q11-141	PTA56L	Height
B	Shaft		Not Req.	AK-19	RN-3	TQ	Not Req.	Attach to R4A
R5A	500K	½	R-2048		A47-500K-S	Q11-133	PTA55L	Vertical Hold
B	Shaft		Not Req.		RN-3	TQ	Not Req.	Attach to R5A
R6	5000Ω	2	R-2045		2S-5000			Vertical Linearity

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	WATT	REPLACEMENT DATA AIRLINE PART No	IRC PART No.	NOTES
R7	680K			BTS-680K	
R8	680K			BTS-680K	
R9	10K			BTS-10K	
R10	680K			BTS-680K	
R11	100K			BTS-100K	
R12	4700Ω			BTS-4700	
R13	270Ω			BTS-270	
R14	10K			BTS-10K	
R15	680Ω			BTS-680	
R16	230K			BTS-230K	
R17	4700Ω			BTS-4700	
R18	10K			BTS-10K	
R19	2300Ω			BTS-2300	
R20	10K			BTS-10K	
R21	100K			BTS-100K	
R22	2300Ω	1		BTA-2300	
R23	1Meg				
R24	100Ω			BTS-100	
R25	47Ω			BTS-47	
R26	470Ω			BTS-470	
R27	180Ω			BTS-180	
R28	6800Ω			BTS-6800	
R29	5.6Meg			BTS-5.6Meg	
R30	1Meg		N-5473	BTS-1Meg	
R31	82Ω			BTS-82	
R32	4700Ω	2		BTH-4700	
R33	100K			BTS-100K	
R34	56K			BTS-56K	
R35	56K	1		BTA-56K	
R36	270K			BTS-270K	
R37	560K			BTS-560K	
R38	470Ω			BTS-47	
R39	560Ω			BTS-560	
R40	220Ω			BTS-220	
R41	230K			BTS-230K	

ITEM No.	RATING OHMS	WATT	REPLACEMENT DATA AIRLINE PART No	IRC PART No.	NOTES
R42	330K			BTS-330K	
R43	560K			BTS-560K	
R44	4700Ω			BTS-4700	
R45	4700Ω			BTS-4700	
R46	270K			BTS-270K	
R47	470K			BTS-470K	
R48	3300Ω			BTS-3300	
R49	180Ω			BTS-180	
R50	2.2Meg			BTS-2.2Meg	
R51	3700Ω	2		BTH-3700	
R52	820Ω	1		BTA-820	
R53	680Ω				
R54	680Ω				
R55	22K				
R56	12K				
R57	47K				
R58	100K				
R59	10K				
R60	56K				
R61	180K				
R62	56K				
R63	120K				
R64	470				
R65	8200Ω	2		BTH-8200	
R66	150K	1		BTA-150K	
R67	150K	1		BTA-150K	
R68	180K	1		BTA-180K	
R69	5600Ω			BTS-5600	
R70	3.3Ω		R-2176	BW1-3.3	
R71	27Ω	10	R-2125	PW10-25	
R72	27Ω	10	R-2125	PW10-25	
R73	27Ω	10	R-2125	PW10-25	
R74	3100Ω	10	R-2330	PW10-3000	
R75	5.6Ω	5	R-1609	FR5.6	
R76	220K			BTS-220K	

Note 1: Some versions use 390K in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA AIRLINE PART No.	Hallodorson PART No.	Merit PART No.	RCA TYPE No	Ram PART No	Stancor PART No	Thordorson PART No	Triad PART No
T1	Vert. Osc. Trans.	R-2061	B6702 ①	A-3003 ②	33971 ①	V40S ①	A-8125 ①	26A03 ①	A-97X ①
T2	Horiz. Osc. Trans.	R-2057 ③	FB648 ③ *	HVO-58 ③ *		X126 ③ * ‡	BO-250 ③	FLY-80 ③	D-83 ③
T3	Vert. Output Trans.	R-2058	Z1808 ①	A-3039 ①	32871 ①	V31S ①	A-8141 ①	26B54 ①	A-104X ①
T4A	Yoke(90°)Horiz(23.5MC)	R-2060	DF607 ③	MDF-80 ③	33SD1 ③	T80F19/43	DY-18A ③	Y-16 ③	T-61-1 ③
B	Ver(42MJ)					③			

① Drill new mounting hole(s).
② Alternate Airline part number.
③ Use original mounting screws and trim term. board to duplicate orig.
④ Use original horiz. damping network if necessary.
‡ This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Hallodorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
1	8	8	8	8	8	8	8
7	3	6	6	3	6	3	3
3	NC	NC	NC	NC	NC	NC	NC
4	See Note ⑤	See Note ⑤		See Note ⑤	See Note ⑤	See Note ⑤	See Note ⑤
5	NC See Note ⑥	NC See Note ⑥		NC See Note ⑥	NC See Note ⑥	NC See Note ⑥	NC See Note ⑥
Special Term	2 ⑦	2 ⑦	2	2 ⑦	2 ⑦	2 ⑦	2 ⑦

⑤ To provide horiz. yoke damping, connect approx. 50-100MMF ③ 2KV in series with resistor R69 across horiz. yoke terms #3 and #7.
⑥ Remove capacitor C90 from circuit and to insure sufficient width, connect approx. 100MMF ③ 4KV across horiz. yoke terms #3 and #5.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA AIRLINE PART No	Hallodorson PART No	Merit PART No	Stancor PART No	Thordorson PART No	Triad PART No	NOTES
T5	13.5K	3-4Ω	R-2089	Z1118	A-2934	A-3881	26S47 ①	S-51X	① Drill one new mtg. hole.

SPEAKER

ITEM No	RATINGS SIZE	FIELD	V C	IMP.	REPLACEMENT DATA AIRLINE PART No	QUAM PART No	RCA TYPE No	NOTES
SP1	4"	PM	3-4Ω		R-2366	4A07	23S51	

COILS (RF-IF)

ITEM No.	USE	AIRLINE PART No.	NOTES
L1	UHF Ant. Coil	31T-1034	Includes R20, R21, C5 & C6 Tapped
L3	UHF RF Coil	24A-143	
L3A	Fil. Choke	31K-137-01T	
B	Fil. Choke		
L4	Cathode Choke	31K-137-01S	
L5	UHF Osc. Coil	25A-141	
L6	UHF Mixer Coil	26A-143	
L7	UHF IF Coil	31U-S18	
L8A	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-302E	
B	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-303E	
C	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-304E	
D	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-305E	
E	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-306E	

ITEM No.	USE	AIRLINE PART No.	NOTES
L8F	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-307E	Channel 7
G	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-308E	Channel 8
H	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-309E	Channel 9
I	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-310E	Channel 10
J	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-311E	Channel 11
K	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-312E	Channel 12
L	VHF Ant., RF, Mixer Grid, Osc. Coils	31M-313E	Channel 13 Includes 2700Ω resistor.
M	UHF IF Coil	31T-1097	
L9	IF Coil	31T-1049	
L10	IF Output Coil	25A-099	

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L11	1st Video IF	.1Ω		R-2062		TV-131	6225	
L12	RF Choke	3Ω		R-1631	19-6033a		6634a	38 Microhenries; Wound on 4700Ω resistor
L13	RF Choke	0Ω		R-2065	19-1001		4804	L 45 Microhenries
L14	Fil. Choke	0Ω		R-2063	19-1001		4804	L 49 Microhenries
L15	2nd Video IF	.1Ω	.1Ω	R-2054				
L16	3rd Video IF	.1Ω	.4Ω	R-2055				
L17	Series Peaking Coil			R-1639	19-1005		4613	1L 7 Microhenries; Not used in some versions.
L18	Series Peaking Coil	5.8Ω		R-1670	19-3003	TV-181	6177	88 Microhenries
L19	Series Peaking Coil	8Ω		R-1950		TV-190a	6134a	356 Microhenries; Wound on 12K resistor
L20	4.5MC Trap	5.7Ω		R-9011	20-1004	TV-181	1469	
L21	Shunt Peaking Coil	3*Ω		R-1949				1U9 Microhenries; Wound on 4700Ω resistor
L22	1st Sound IF	1.1Ω		R-1826	20-1004	TV-181	1469	*Tapped ② 6Ω
L23	2nd Sound IF	1.9Ω*	5.5Ω	R-2260				
L24	Quadrature Coil	4Ω		R-2159				

* Parallel with 4700Ω resistor.
‡ Parallel with 12K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES PRI.	SEC.	REPLACEMENT DATA AIRLINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordorson PART No.	NOTES
L25	75Ω		R-1408							Tapped ② 53Ω Horiz. Osc.
L26	46Ω		R-1405							Horiz. Waveform

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA AIRLINE PART No.	Hallodorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
L27	.180A	54Ω	.041H	R-2056	C5041 ①	C-2968 ①	C-2328 ①	26C44 ①	C-23X ①

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADRLDVE PART No	REPLACEMENT DATA	
K1	Sync Circuit	270MMF, 1000MMF, 25MMF, 330K, 2.2Meg, 10K	R-1459	Aerovox Centralab Sprague	PA-S31 PC-260 ST-1
K3	Vertical Integrator	4700MMF, 4700MMF, 22K, 10K	R-1458	Aerovox Centralab Sprague	PA-S32-2 PC-104 V-5

AIRLINE MODELS GRX4028A, GRX4119A, GRX4123A, GRX4125A, GRX4128A, GSL4119A, GSL4123A

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA AIRLINE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.180A	R-2147	1028A	6RS250	6S250	6Q2	250A	
M2	.180A	R-2147	1028A	6RS250	6S250	6Q2	250A	

SELENIUM DIODE

ITEM No.	RATING CURRENT	REPLACEMENT DATA AIRLINE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M3		R-2141		1T1				Horiz. AFC

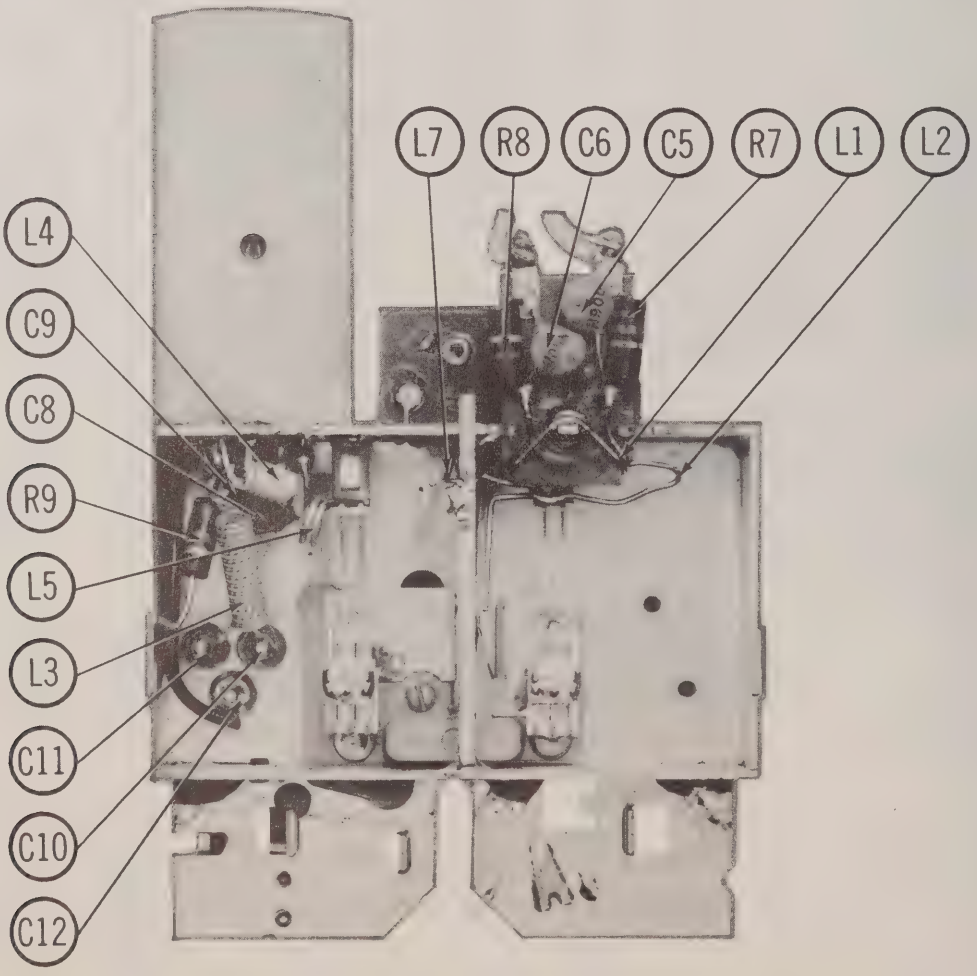
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA AIRLINE PART No.	SYLVANIA PART No.	NOTES
M4	1N82	31K-111	1N82A	UHF Mixer (Clip In)
M5	1N60*		1N60	Video Detector (Pigtail)

* 1N64 may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M6	Tuner	R-2041	UHF-VHF
M7	Centering Device	R-2043	
M8	Ion Trap	R-2044	
	Knob	R-2470	UHF Channel Selector, Model 4125.
	Knob	R-2171	UHF Channel Selector, Models 4119 and 4123.
	Knob	R-2468	VHF Channel Selector, Model 4125.
	Knob	R-2170	VHF Channel Selector, Model 4119 and 4123.
	Knob	R-2469	Fine Tuning, Model 4125.
	Knob	R-2172	Fine Tuning, Model 4119 and 4123.
	Knob	R-2472	On-Off Volume, Model 4125.
	Knob	R-2148	On-Off Volume, Models 4119 and 4123.
	Knob	R-2473	Contrast, Model 4125.
	Knob	R-2149	Contrast, Models 4119 and 4123.
	Safety Glass	R-2070	



UHF-VHF TUNER REAR VIEW

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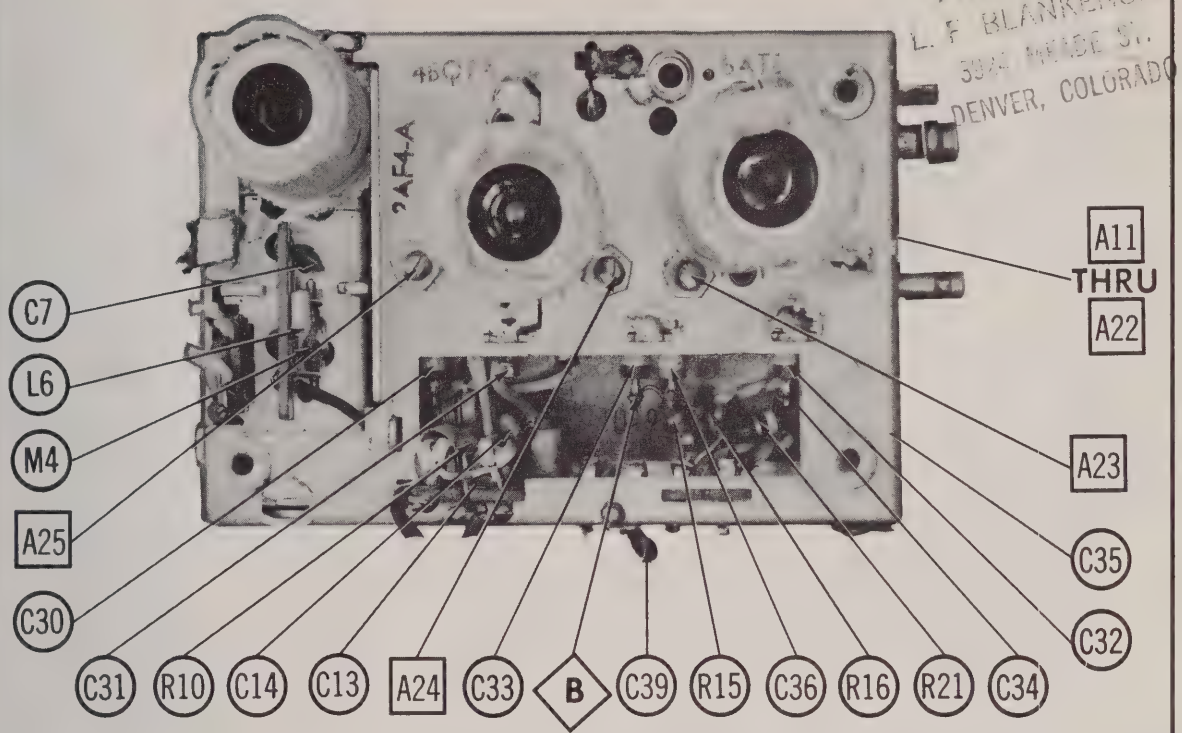
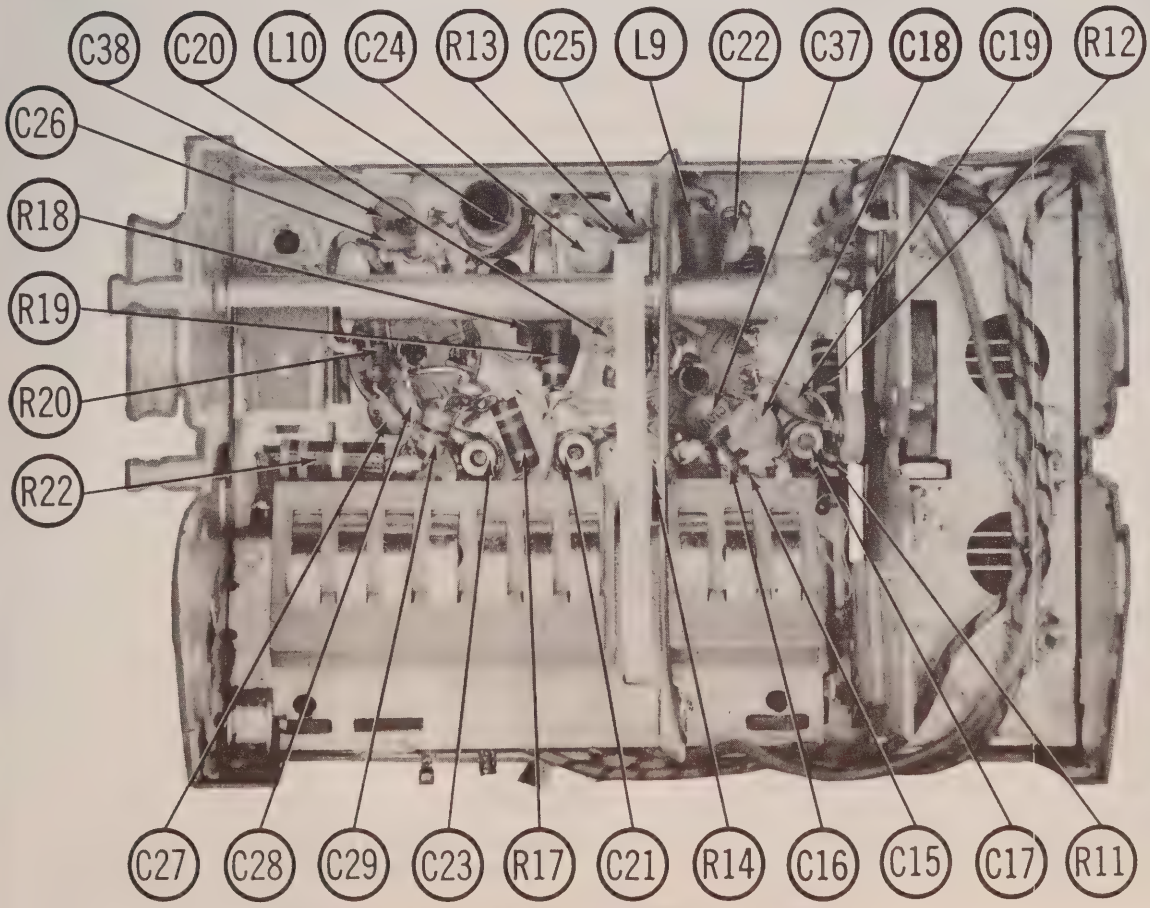
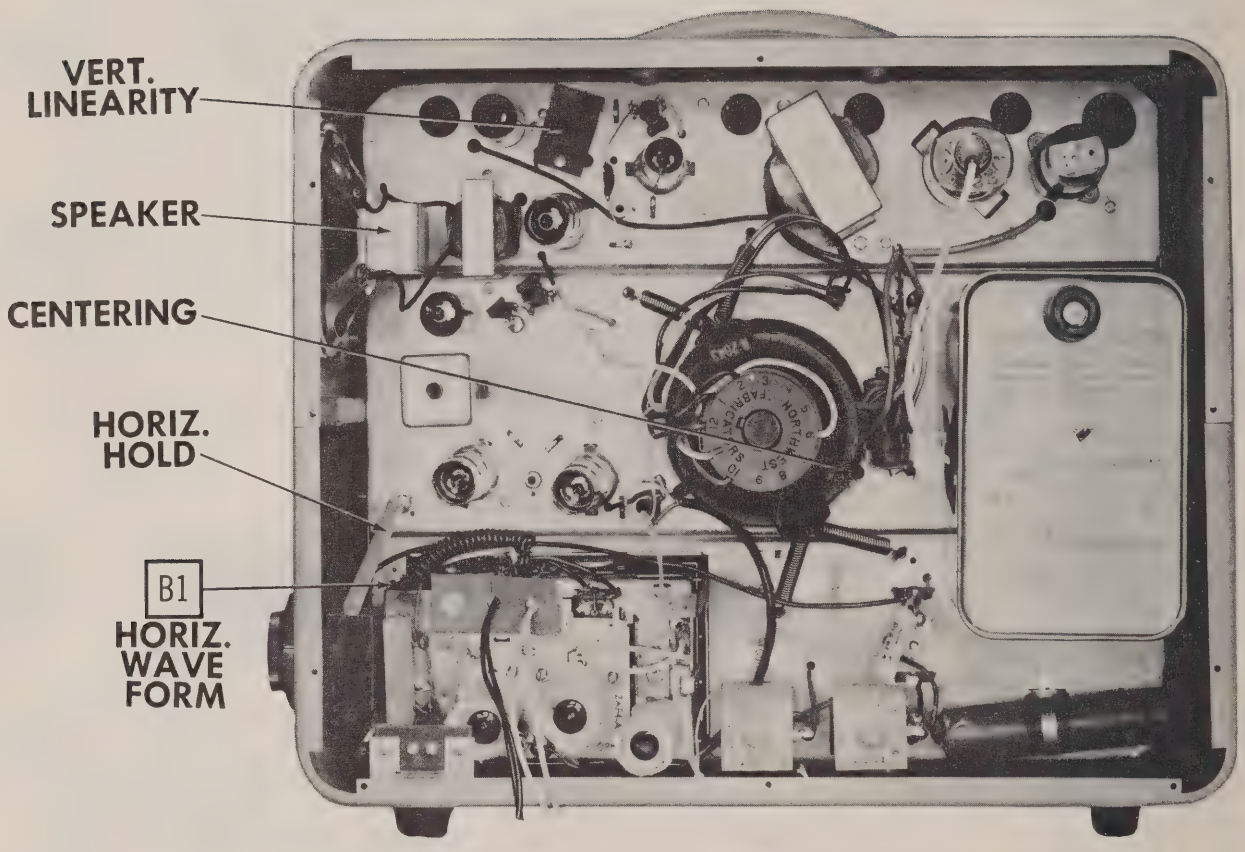


UHF-VHF TUNER TOP VIEW



UHF-VHF TUNER BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.
Set the contrast control for normal contrast.

1. Adjust the horizontal hold until the picture synchronizes horizontally.

2. Connect the vertical amplifier of the scope thru 10MMF to point Ⓒ. Low side to chassis. Adjust the horizontal waveform slug (B1) until a waveform similar to Fig. 6 is obtained. While making this adjustment, keep the picture in sync with the horizontal hold.

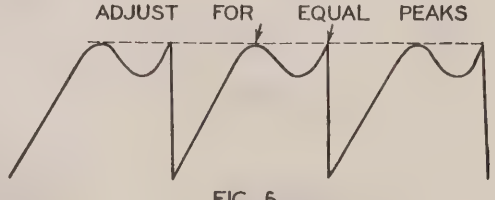


FIG. 5

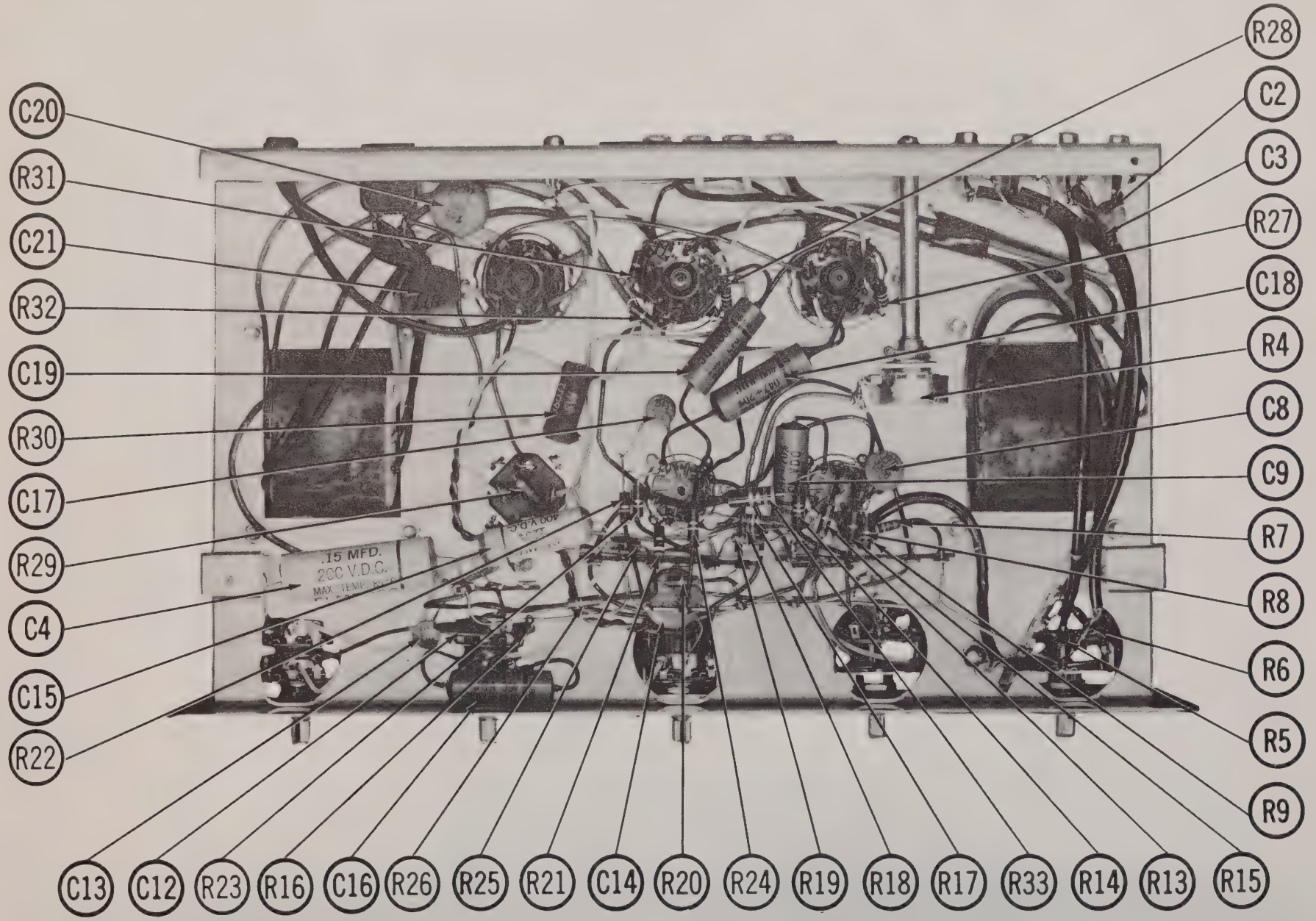
PROPERTY OF
L. F. DLARKENSHIP
3[illegible] MAGNOLIA ST.
DENVER, COLORADO

CRAFTSMEN
MODEL CA-11

CRAFTSMEN
MODEL CA-11

TRADE NAME	Craftsmen Model CA-11
MANUFACTURER	Radio Craftsmen Inc., 4223 W. Jefferson Blvd., Los Angeles 16, Calif.
TYPE SET	AC Operated 4 Channel Audio Amplifier
TUBES (Five)	Types 12AX7 AF Amplifier, 12AX7 AF Amp.-Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .55 Amp. @ 117 Volts AC

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st. AF Amplifier	12AX7	
V2	2nd. AF Amp. -Phase Inv.	12AX7	
V3	Output	6V6GT	
V4	Output	6V6GT	
V5	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CRAFTSMEN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	350	CEX-10			FP420.35		Q-210	R2324 *
B	■30	300				TC3501		MT-05100	
C	▲20	250							
D	100	50							

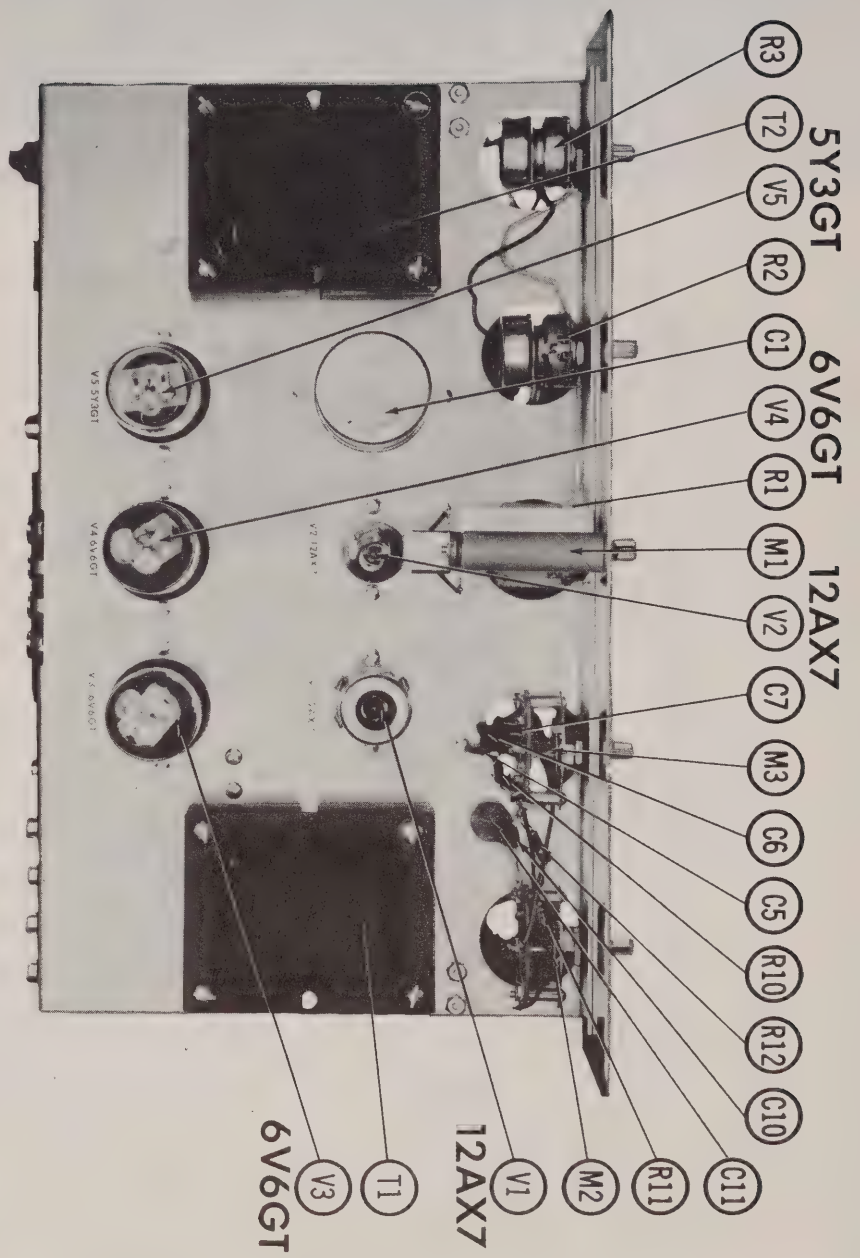
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CRAFTSMEN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	100			DI-0001	DD-101	G042	ED-100	UC-531	5GA-T1	
C3	100			DI-0001	DD-101	G042	ED-100	UC-531	5GA-T1	
C4	.15	200		P288N-15		CUB2P15		GEM-2015	2TM-P15	
C5	270			DI-00027	DD-271	G054	ED-270	UC-5327	5GA-T27	
C6	470			DI-00047	DD-471	G060	ED-470	UC-5347	5GA-T47	
C7	1000			DI-001	DD-102	G069	ED-1000	UC-521	5GA-D1	
C8	3300			DI-0033	D6-332	K077	ED-0033	UC-5233	5GA-D33	
C9	.047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C10	2000			DI-002	DD-202	G072	ED-002	DC522	5GA-D2	
C11	3300			DI-0033	D6-332	K077	ED-0033	UC-5233	5GA-D33	
C12	20000			BPD-02	DD-203	K085	ED-02	GEM-412	5HK-S2	
C13	1000			DI-001	DD-102	G069	ED-1000	UC-521	5GA-D1	
C14	20000			BPD-02	DD-203	K085	ED-02	GEM-412	5HK-S2	
C15	.033	400		BPD-03	DF-303	CUB6S33		GEM-4133	6TM-S33	
C16	.047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C17	200			DI-0002	DD-201	G050	ED-200	UC-532	5GA-T2	
C18	.047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C19	.047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C20	20000			BPD-02	DD-203	K085	ED-02	GEM-412	5HK-S2	
C21	20000			BPD-02	DD-203	K085	ED-02	GEM-412	5HK-S2	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CRAFTSMEN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	P-26	C1-70-S		Q18-137XX	UDT289	Contoured loudness- taps @ 250K, 400K
B	Shaft			Not Req.		Not Req.	Not Req.	Attach to R1A
C	Switch			Not Req.		76-1	US-26	Attach to R1A
R2A	100K	½-⅓	P-24			Q13-128	UF15A	Bass (Panel)
B	1Meg	½-⅓				M13-137	UR16L	Bass (Rear)
C	Shaft					Not Req.	Not Req.	Attach to R2A
R3A	50K	½-⅓	P-25			Q11-123	UF54L	Treble (Panel)
B	5000Ω	½-⅓				M11-114	UR53L	Treble (Rear)
C	Shaft					Not Req.	Not Req.	Attach to R3A
R4A	1Meg	½	P-27	AB-69	A47-1Meg-S	Q11-137	U54	Level Set
B	Shaft			AK-9	RS-3	PQ	DS-36	Attach to R4A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CRAFTSMEN PART No.	IRC PART No.	
R5	470K			BTS-470K	
R6	470K			BTS-470K	
R7	27K			BTS-27K	
R8	270K			BTS-270K	
R9	820Ω			BTS-820	
R10	150K			BTS-150K	
R11	27K			BTS-27K	
R12	1.5Meg			BTS-1.5Meg	
R13	1Meg			BTS-1Meg	
R14	270K			BTS-270K	
R15	1500Ω			BTS-1500	
R16	33K			BTS-33K	
R17	820K			BTS-820K	
R18	270K			BTS-270K	
R19	33K			BTS-33K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CRAFTSMEN PART No.	IRC PART No.	
R20	820Ω			BTS-820	
R21	390Ω			BTS-390	
R22	12K			BTS-12K	
R23	220K			BTS-220K	
R24	220K			BTS-220K	
R25	6800Ω			BTS-6800	
R26	22K			BTS-22K	
R27	470K			BTS-470K	
R28	470K			BTS-470K	
R29	1800Ω			BTS-1800	
R30	350Ω	5		1 3/4A-350	
R31	68Ω			BTS-68	
R32	68Ω			BTS-68	
R33	4.7Ω	1		BW1-4.7	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	CRAFTSMEN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .55A	610VCT .066ADC	5 VAC @ 2A	6.3VAC @ 1.75A	T-26	P9305 ①	P-2951		22R02	R-9B ①

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CRAFTSMEN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8000Ω	16Ω tap @ 8Ω, 4Ω	T-27				22S66 ①		① Use original shield

MISCELLANEOUS

ITEM No.	PART NAME	CRAFTSMEN PART No.	NOTES
M1	Pilot Light		#47
M2	Switch	SW-38	Function (2 Pole - 5 Position, rotary, wafer type)
M3	Switch	SW-37	Roll-Off (SP- 4 position, rotary, wafer type)
	Knob	N-12	5 Used

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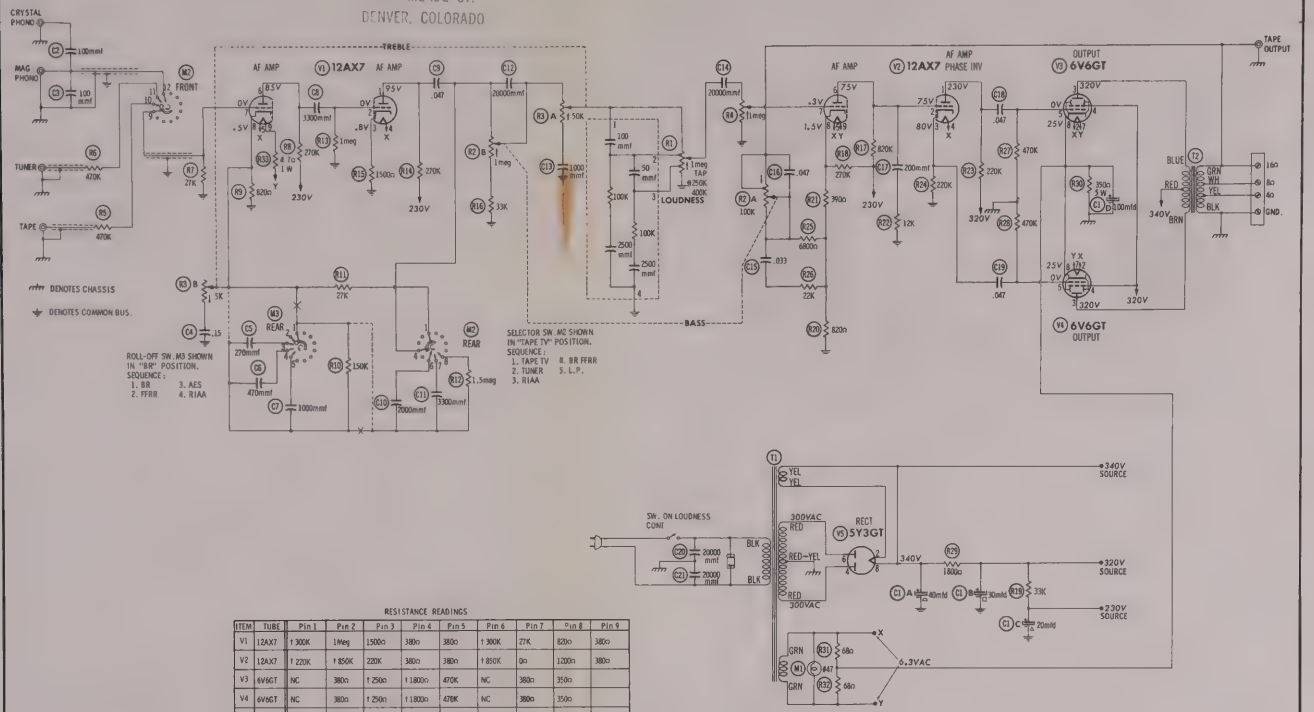

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†300K	1Meg	1500Ω	380Ω	380Ω	†300K	27K	820Ω	380Ω
V2	12AX7	†220K	†850K	220K	380Ω	380Ω	†850K	0Ω	1200Ω	380Ω
V3	6V6GT	NC	380Ω	†250Ω	†1800Ω	470K	NC	380Ω	350Ω	
V4	6V6GT	NC	380Ω	†250Ω	†1800Ω	470K	NC	380Ω	350Ω	
V5	5Y3GT	NC	TP	NC	155Ω	NC	155Ω	TP	70K	

NC NO CONNECTION.
TP TIE POINT
† MEASURED FROM PIN 8 OF V5.
▲ LEVEL CONTROL SET AT MAXIMUM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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DEWALD MODEL K-412

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L. F. BLANKENSHIP
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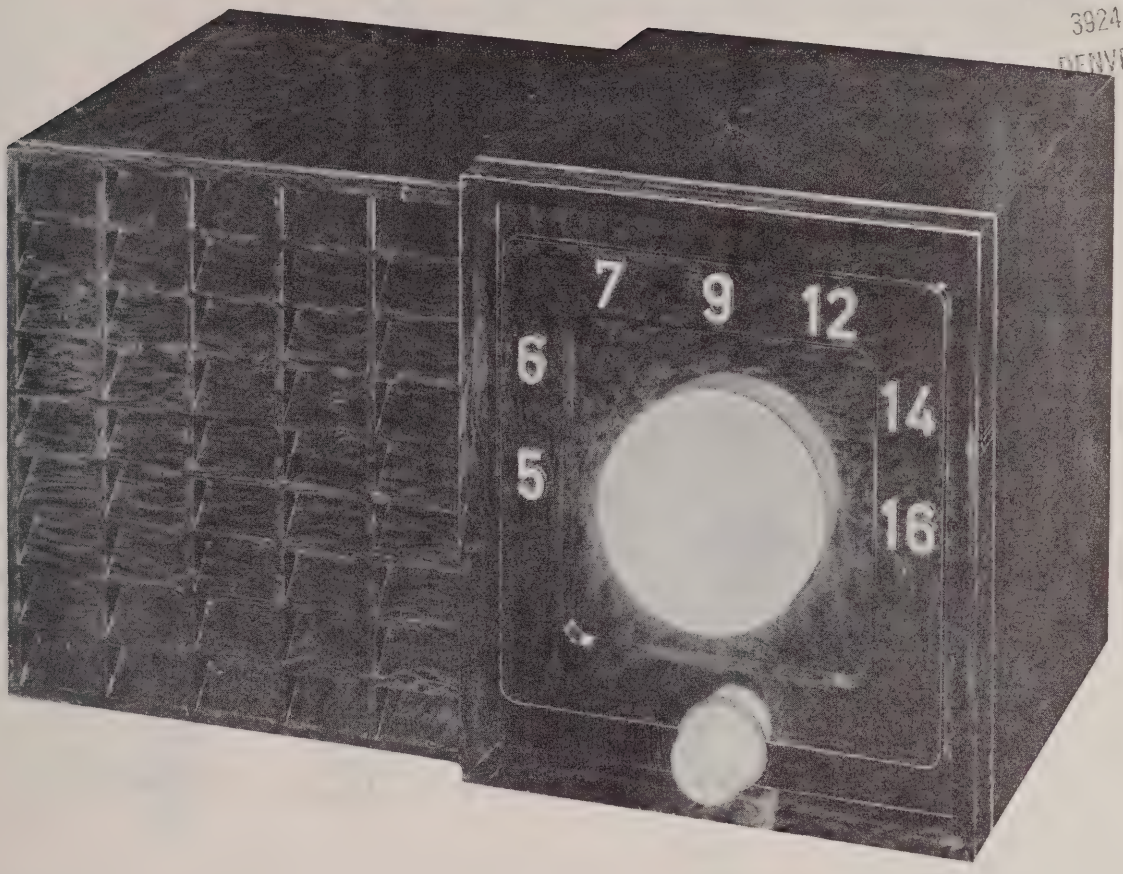
DENVER, COLORADO

DEWALD
MODEL K-412



DEWALD
MODEL K-412

TRADE NAME	Dewald Model K-412
MANUFACTURER	Dewald Radio Mfg. Corp., 35-15 37th. Ave., Long Island City 1, N. Y.
TYPE SET	AC-DC Operated AM Receiver
TUBES (Four)	Types 12AU6 Converter, 12AV6 Det.-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC-1660KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 1 (grid) of 12AU6 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	"	"	1660KC	"	"	A3	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

DEWALD
MODEL K-412

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AU6	
V2	Det.-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V3	Output	50C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DEWALD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	30	150	E-200-4	PRS150/25V 4030/20	BBRT3315 C	TCT3055	TDLT-13	FMD-1530 FM-0210	TVA-3423
B	30	150							
C	10	15							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DEWALD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	47			N750-DI47	TCN-47	N033	TC7-47	NT-5447	5TCU-Q47	Note 1
C3	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C4	.05	400		BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C5	.05	200		BPD-05	DF-503	CUB2S5		PT415	2TM-S5	

Note 1. Some versions use 22MMF in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DEWALD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2Meg	½	3046-6	AB-76	A47-2Meg-Z	Q13-139	U55	Volume
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch			KB-1	SWE-12	76-1	US-26	Attach to R1A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

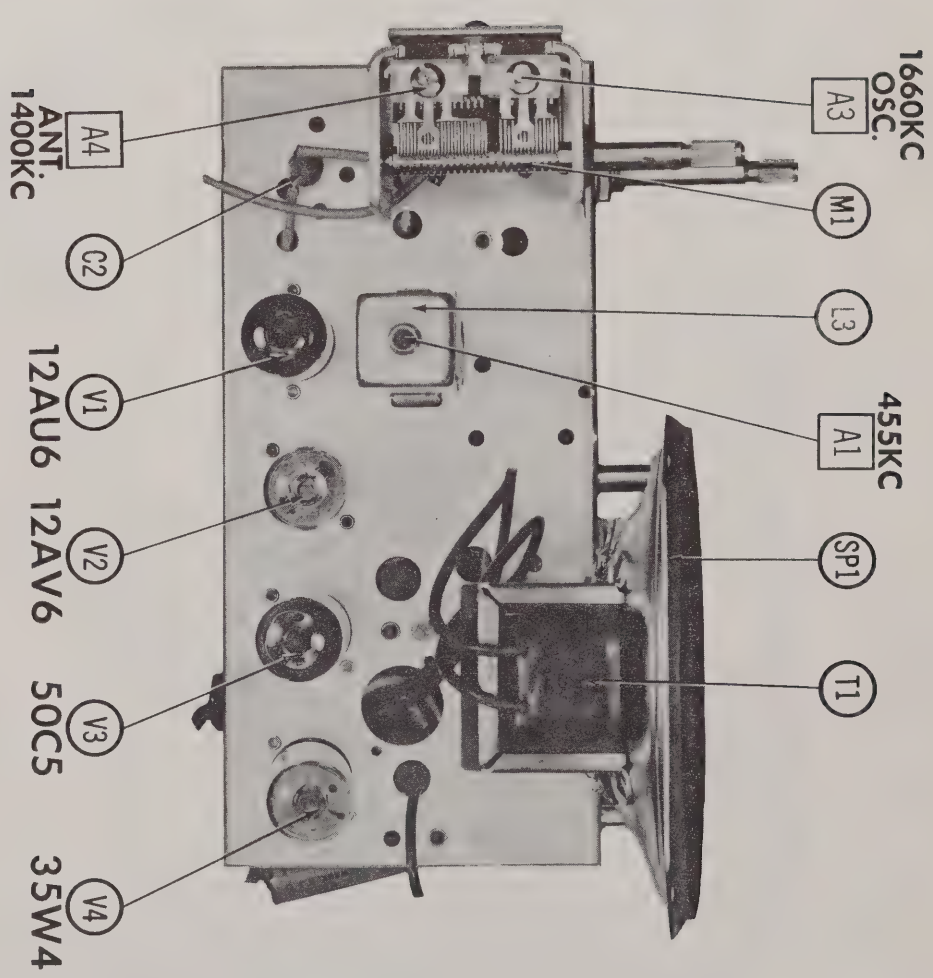
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DEWALD PART No.	IRC PART No.	
R2	1.5Meg			BTS-1.5Meg	
R3	150Ω			BTS-150	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DEWALD PART No.	IRC PART No.	
R4	1500Ω	1		BTA-1500	
R5	68Ω	2		BTB-68	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DEWALD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3150Ω	3-4Ω	Part of Spkr. 7003C-9	Z1101	A-3025	A-3332	26S58	S-12X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Stick	.4Ω		1156F-6				Tertiary winding -1.6Ω
L2	Osc. Coil	.8Ω	7.5Ω	1157A-4				* Tapped @ 1Ω
L3	IF Trans.	29Ω *	29Ω	1091C-9				

SPEAKER

ITEM No.	RATINGS: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: DEWALD PART No.	QUAM PART No.	RCA TYPE No.	NOTES
SP1	4"	PM	3-4Ω	7003C-9	4A07	223S1	

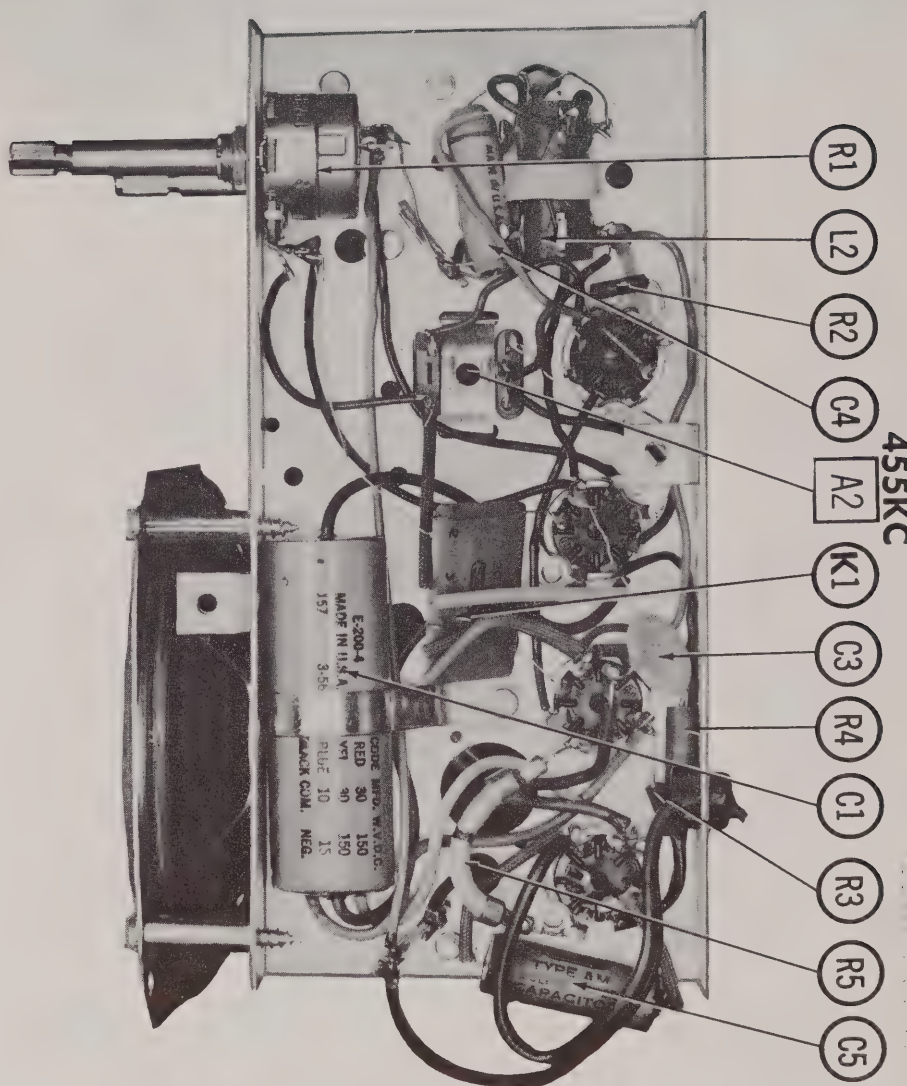
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	DEWALD PART No.	REPLACEMENT DATA	
K1	Detector-Audio Circuit	470K, 470K, 6.8Meg, 5000MMF, 5000MMF, 220MMF, 250MMF		Aerovox	PA-113-2
				Centralab	PC-151
				Cornell-Dubilier	116TM2
				Erie	1408-02
				Sprague	DT-2

MISCELLANEOUS

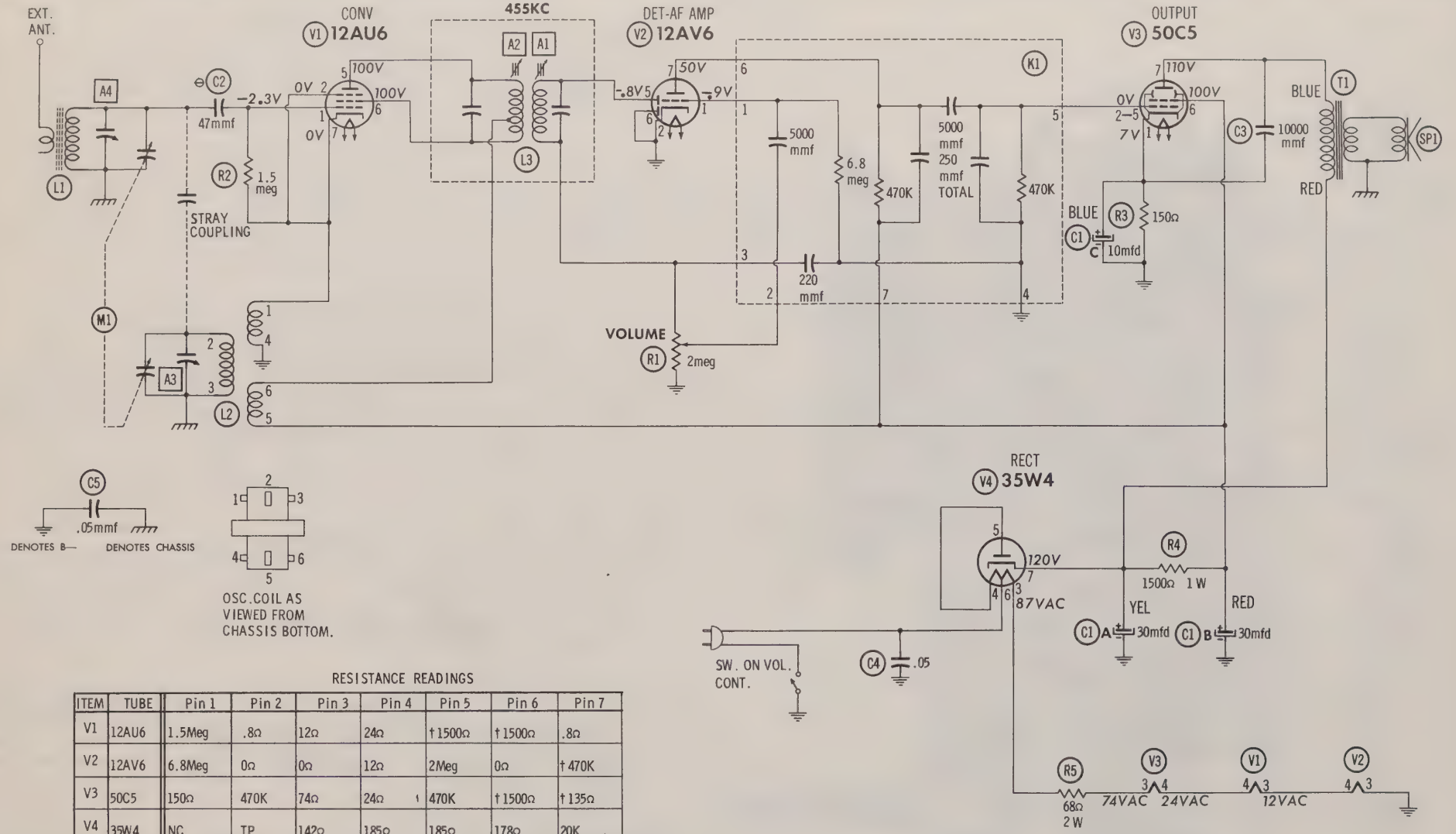
ITEM No.	PART NAME	DEWALD PART No.	NOTES
M1	Tuning Cap.	V-217-1	2 Gang (27-385MMF, 13-105MMF)
	Cabinet	C-443-1	Ivory
	Cabinet	C-443-2	Walnut
	Knob	4228D-11	Tuning
	Knob	1450D	On- off-volume

CHASSIS—BOTTOM VIEW



PROPERTY OF
DEWALD
MODEL K-412

DEWALD
MODEL K-412



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	1.5Meg	.8Ω	12Ω	24Ω	†1500Ω	†1500Ω	.8Ω
V2	12AV6	6.8Meg	0Ω	0Ω	12Ω	2Meg	0Ω	†470K
V3	50C5	150Ω	470K	74Ω	24Ω	470K	†1500Ω	†135Ω
V4	35W4	NC	TP	142Ω	185Ω	185Ω	178Ω	20K

† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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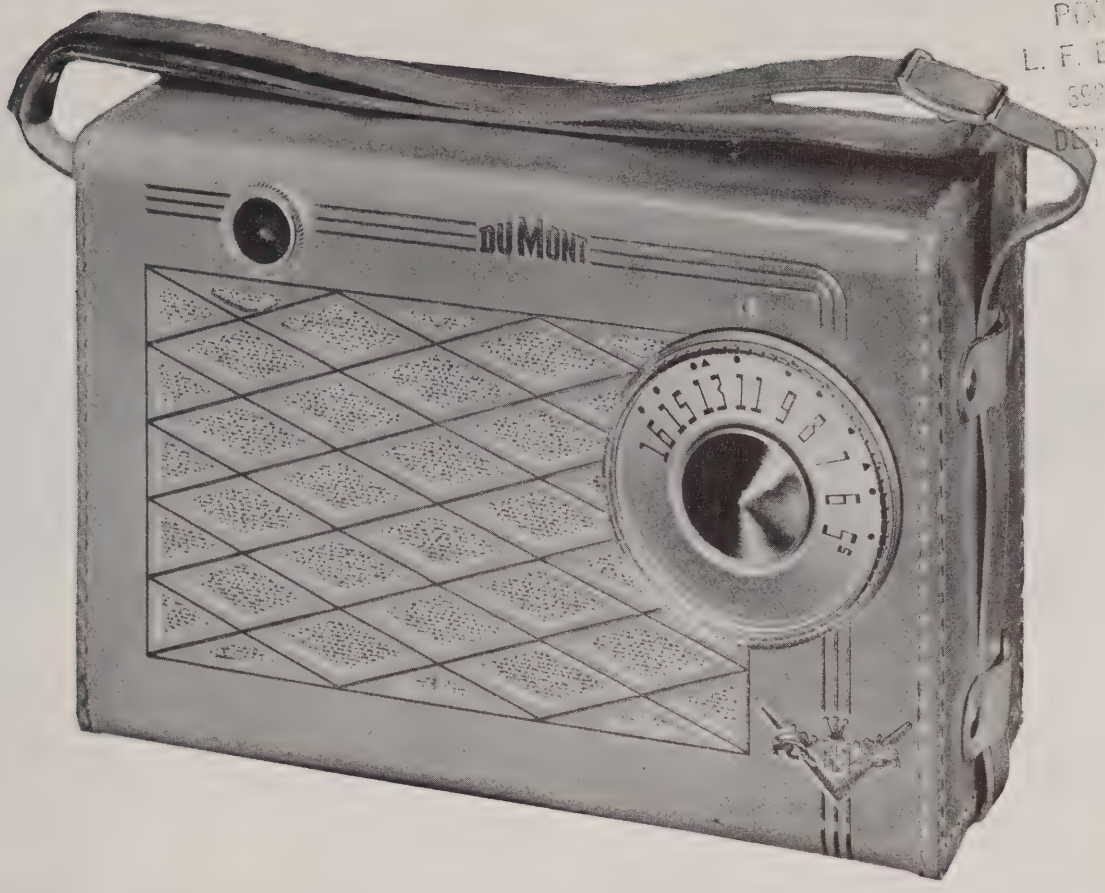
DUMONT CHASSIS
RA-354 "Beachcomber"

PROPERTY OF
L. F. BANKSHIP
3924 MEADE ST.
DENVER, COLORADO

DUMONT CHASSIS
RA-354 "Beachcomber"



DUMONT CHASSIS
RA-354 "Beachcomber"

TRADE NAME	Dumont Chassis RA-354
MANUFACTURER	Allen B. Dumont Laboratories Inc., 2 Main St., Passaic, N.J.
TYPE SET	Three Power Portable AM Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amplifier, 3V4 Output
POWER SUPPLY	110-120 Volts AC-DC (or) 7.5 Volts "A" Supply & 75 Volts "B" Supply
RATING	.15 Amp. @ 117 Volts AC (or) 55MA @ 7.5 Volts DC & 7.5MA @ 75 Volts DC
TUNING RANGE—BROADCAST	540KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400∿Mod)	Tuning gang fully closed	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1620KC	Tuning gang fully open	"	A4	"
3.		"	1400KC	Tune to 1400KC signal	"	A5	"
4.		"	600KC	Tune to 600KC signal	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

DUMONT CHASSIS RA-354

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det.-AVC-AF Amplifier	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DUMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■50	150	03127481	AFH3-11-20	CO110	FP311.6	TMT-162	T-040	TVL-3441
B	10	150						MT-1512	
C	▲40	150							
C2	50	12	03143130	PRS12V50	BR502	TC29	TD-50-25	MT-0250	TVA-1206

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DUMONT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	.047	200	03140340	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C4	47		03153570	N750-DI47	TCN-47	N033	TC7-47	NT-5447	5TCU-Q47	
C5	4700		03137810	BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C6	4700		03137810	BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C7	3.3		03133900	NP0-SI3.3	TCZ-3R3	TZ06	TCO-3.3	ZT-5533	5TCCB-V33	
C8	4700		03153740	BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C9	2200		03153720	DI-0022	D6-222	K073	ED-0022	UC-5222	5HK-D22	
C10	.22	200	03140380	P288N-22		CUB2P22		PT4022	2TM-P22	
C11	.047	400	03139686	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C12	.1	400	03141120	P488N-1	DF-104	CUB4P1		PT401	4TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DUMONT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	01058363	B-70	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-2	SWE-20	76-2	US-27	Attach to R1A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

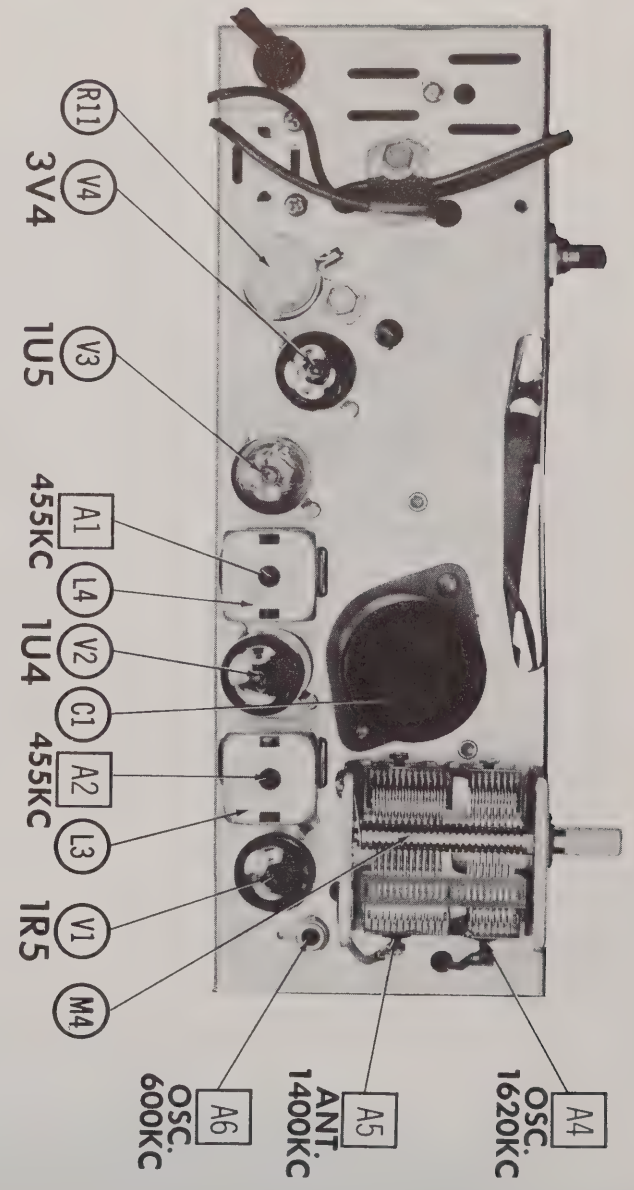
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DUMONT PART No.	IRC PART No.	
R2	100K		02032010	BTS-100K	
R3	15K		02032630	BTS-15K	
R4	3.3Meg		02032630	BTS-3.3Meg	
R5	2.2Meg		02032620	BTS-2.2Meg	
R6	10Meg		02032660	BTS-10Meg	
R7	1500Ω		02031790	BTS-1500	
R8	680Ω		02251750	BTS-680	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DUMONT PART No.	IRC PART No.	
R9	820Ω		02031760	BTS-820	
R10	330Ω	1	02251710	BTA-330	
R11A	1050Ω	7.5	02246500		
B	1050Ω	7.5			
R12	820Ω		02031760	BTS-820	
R13	120Ω	4	02240110	PW4-150	
R14	150K		02032550	BTS-150K	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DUMONT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	8000Ω	3-4Ω	20010481	Z1110	A-2998	A-3329	24S49	S-8X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	DUMONT PART No.	QUAM PART No.	RCA TYPE No.	
SP1	4"	PM	3-4Ω	18003951	4A07	223S1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	DUMONT PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	.7Ω		22002471				
L2	Osc. Coil	1.6Ω	7.7Ω	21014491			70-OSC	
L3	Input IF	25Ω	25Ω	20010461	16-6758	BC-352	12-C1	
L4	Output IF	34Ω	25Ω	20010471				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	DUMONT PART No.	REPLACEMENT DATA	
K1	Audio Circuit	1Meg, 2.2Meg, 4.7Meg, 100MMF, 5000MMF, 5000MMF	88001401	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-117 PC-91 114TM2 1407-03 P-2

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	DUMONT PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.066A	26002291	1003A	RS075	6S75	5M4	75	

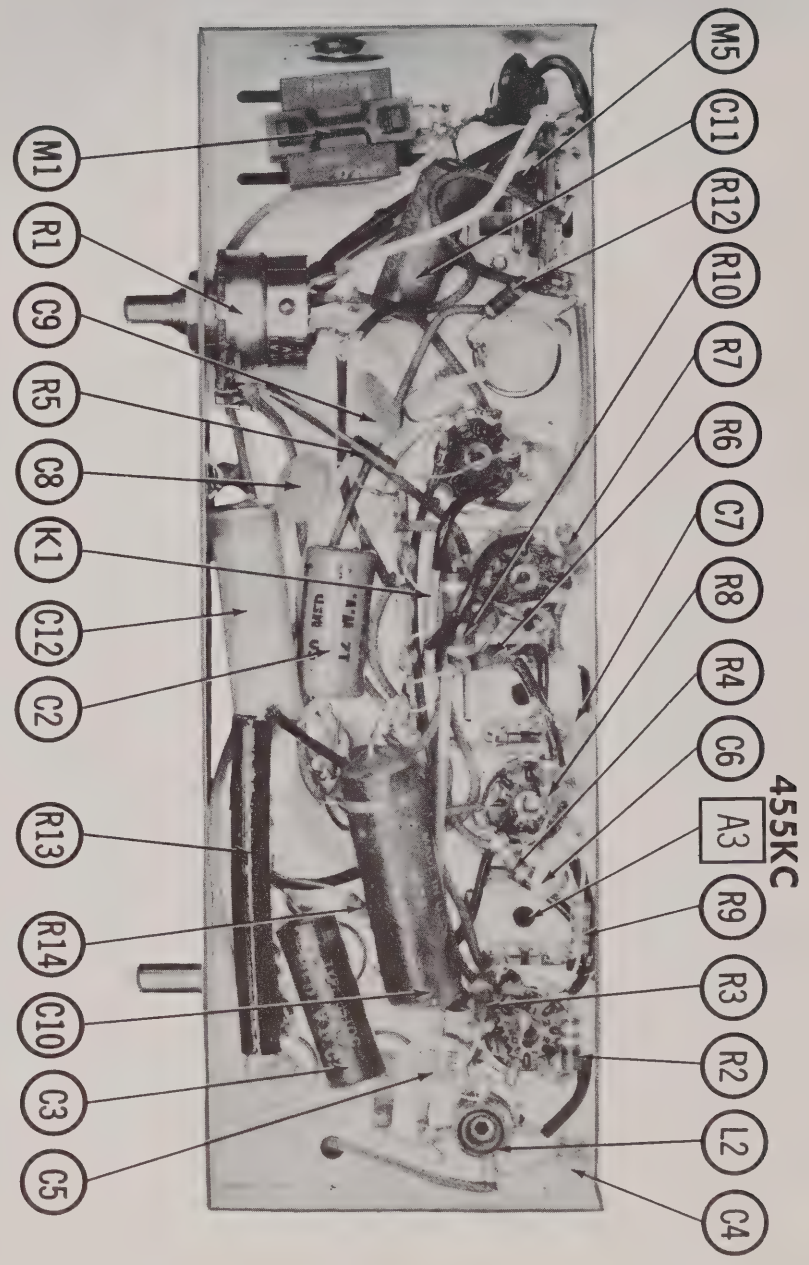
BATTERIES

ITEM No.	VOLTAGE	DUMONT PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2 M3	7.5V "A" 75V "B"		717	437		C5	XX50		

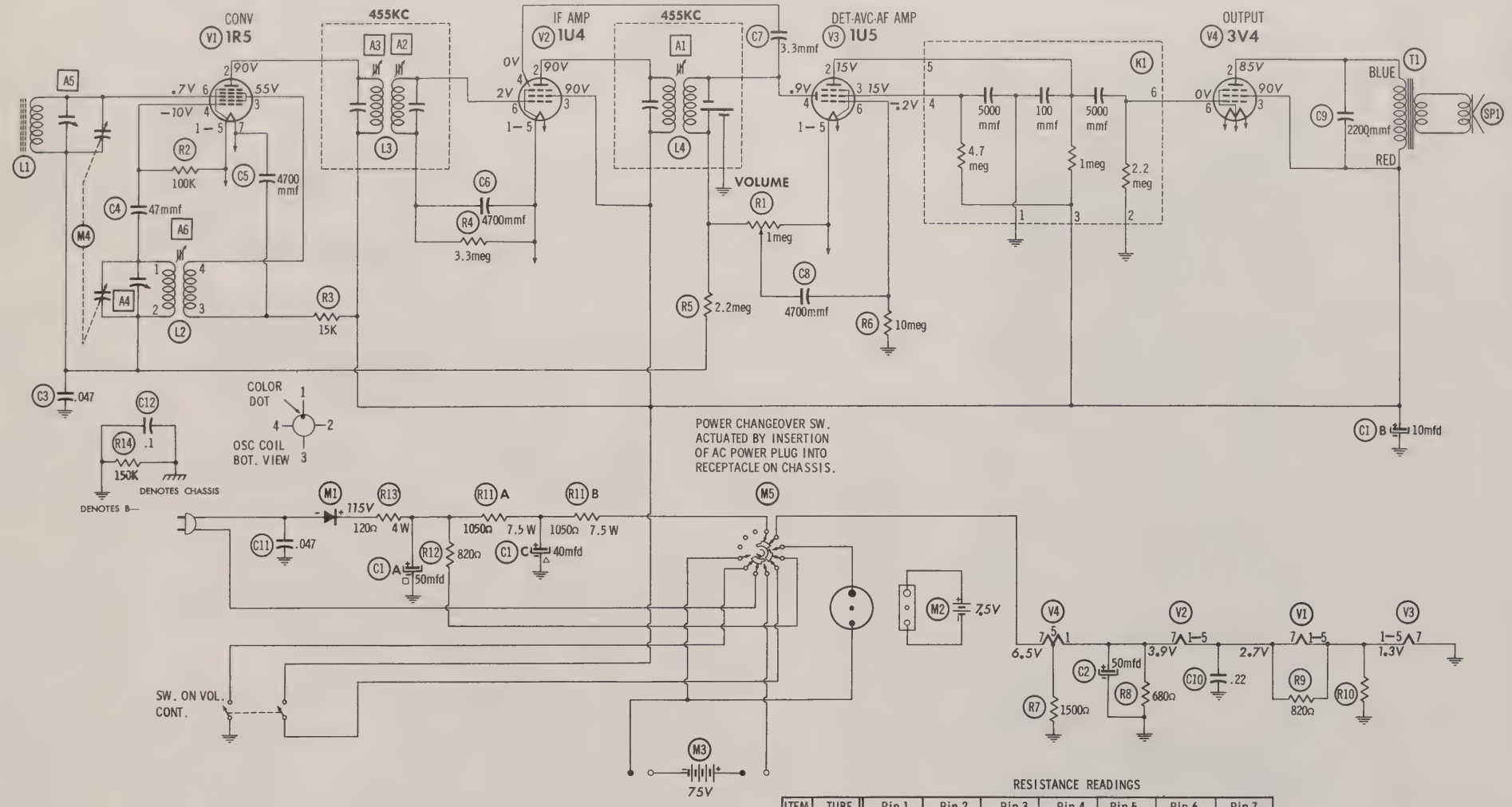
MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M4	Tuning Cap.	03127491	2 Gang (25-335MMF, 23-180MMF)
M5	Switch	05012170	Power Changeover (3 pole - 2 position, rotary, wafer type)
	Case	33035421	Hunter Green
	Case	33035422	Maroon
	Case	33035423	Saddle tan
	Knob	45007321	On-off-volume
	Tuning Dial	45007331	

CHASSIS—BOTTOM VIEW



DUMONT CHASSIS RA-354



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	†950Ω	†16K	100K	•	3.2Meg	•
V2	1U4	•	†950Ω	†950Ω	INF	•	3.3Meg	•
V3	1U5	•	†1Meg	†4.7Meg	1Meg	TP	10Meg	•
V4	3V4	•	†1100Ω	†950Ω	TP	•	2.2Meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.
TP TIE POINT.

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MAGNAVOX
CHASSIS AMP-150

PROPERTY OF
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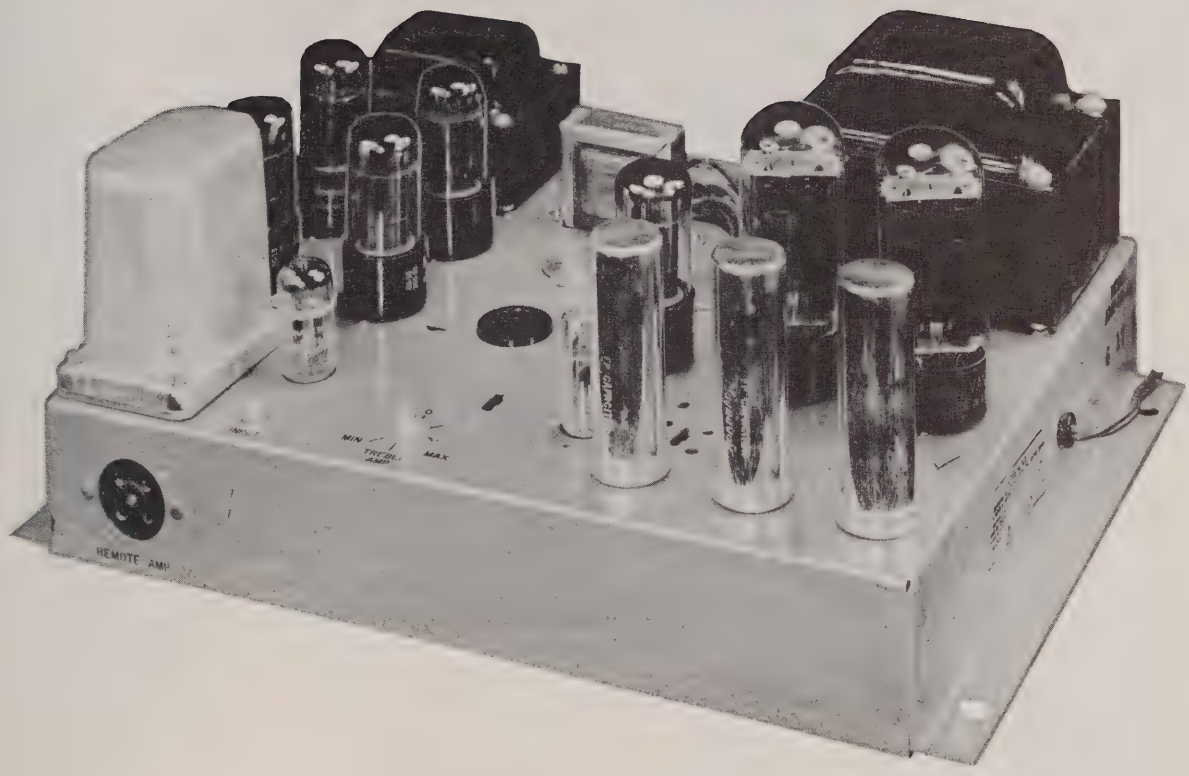
DEL. CO.

MAGNAVOX
CHASSIS AMP-150



MAGNAVOX
CHASSIS AMP-150

TRADE NAME	Magnavox Chassis AMP-150AA
MANUFACTURER	Magnavox Co., 2131 Bueter Rd., Fort Wayne, Ind.
TYPE SET	AC Operated Audio Amplifier
TUBES (Nine)	Types 12AT7 AF Amp.-Phase Inv., (4) Lo Freq. Output, 6AT6 AF Amp., 6V6GT Hi Freq. Output, (2) 5U4GA Rectifier
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING 1.36 Amp. @ 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

MAGNAVOX
CHASSIS AMP-150AA

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inverter	12AT7	
V2	Lo Freq. Output	6V6GT	
V3	Lo Freq. Output	6V6GT	
V4	Lo Freq. Output	6V6GT	
V5	Lo Freq. Output	6V6GT	

ITEM No.	USE	TYPE	NOTES
V6	AF Amplifier	6AT6	
V7	Hi Freq. Output	6V6GT	
V8	Rectifier	5U4GA	
V9	Rectifier	5U4GA	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■30	475	270023-2		BO410	FP259		S-295	R2321 *
B	▲10	475						MT-4710	
C2A	■30	475	270023-2		BO410	FP259		S-295	R2321 *
B	▲10	475						MT-4710	
C3A	■30	475	270023-2		BO410	FP259		S-295	R2321 *
B	▲10	475						MT-4710	
C4	20	25	270027-2	PRS25V25	BR202	TC26	TD-25-25	FM-0225	TVA-1205

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	.015	200	250202-8	BPD-015	DD16-153	CUB6S15	ED-.015	PT6115	4TM-S15	
C6	.022	200	250202-9	BPD-02	DF-203	CUB4S22	ED-.02	PT4122	2TM-S22	
C7	10000		250218-19	BPD-01	DD-103	K082	ED-.01	DC511	5HK-S1	
C8	220		250218-5	SI 220	DD-221	G051	ED-220	UC-5322	5GA-T22	
C9	.1	600	250201-13	P688N-1	DF-104	CUB6P1		PT601	6TM-P1	
C10	.1	600	250201-13	P688N-1	DF-104	CUB6P1		PT601	6TM-P1	
C11	.015	200	250202-8	BPD-015	DD16-153	CUB6S15	ED-.015	PT6115	4TM-S15	
C12	.033	200	250202-10	BPD-03	DF-303	CUB6S33		PT4133	6TM-S33	
C13	10000		250218-19	BPD-01	DD-103	K082	ED-.01	DC511	5HK-S1	
C14	220		250218-5	SI 220	DD-221	G051	ED-220	UC-5322	5GA-T22	
C15	220		250218-5	SI 220	DD-221	G051	ED-220	UC-5322	5GA-T22	
C16	10000		250218-19	BPD-01	DD-103	K082	ED-.01	DC511	5HK-S1	
C17A	10000	1000	250219-3		DD-103				10HK-S1	
B	10000	1000			DD-103				10HK-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	5000Ω	½	220126-49	AB-10	A47-5000-S	Q1-114	SU-14	Treble
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	Attach to R1A

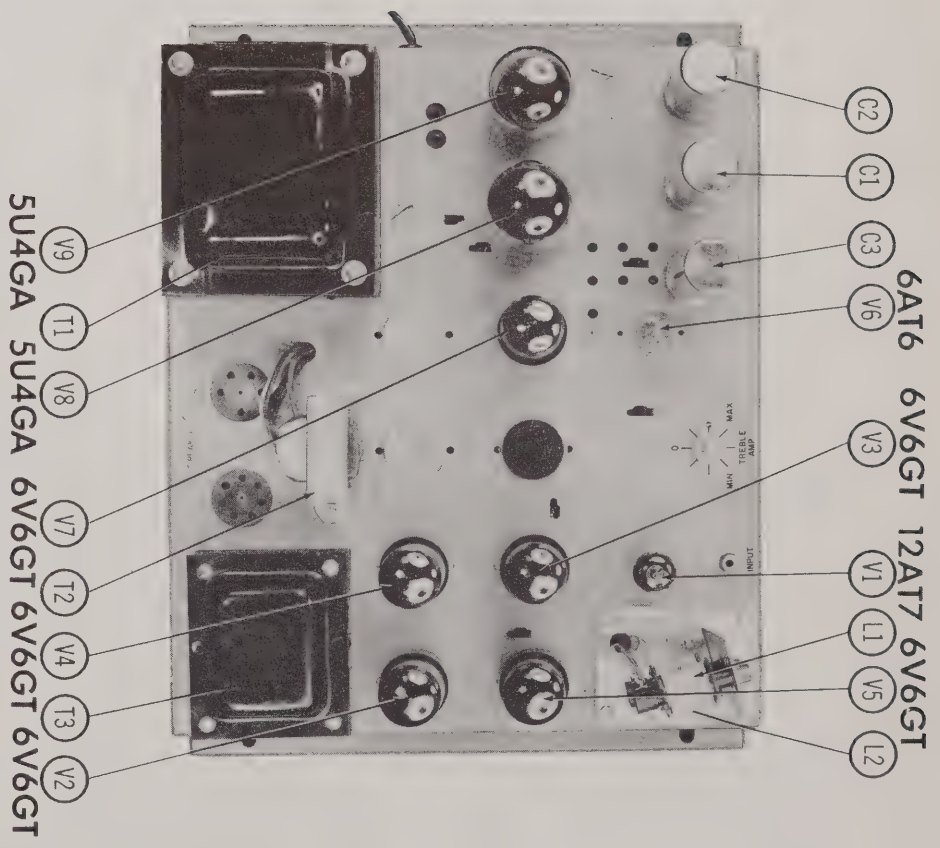
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MAGNAVOX PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	15K		230104-76	BTS-15K	
R3	100K		230104-86	BTS-100K	
R4	100K		230104-86	BTS-100K	
R5	220K		230104-90	BTS-220K	
R6	1500Ω		230104-64	BTS-1500	
R7	22K		230104-78	BTS-22K	
R8	220K		230104-90	BTS-220K	
R9	5600Ω		230104-71	BTS-5600	
R10	220K		230104-90	BTS-220K	
R11	15K	1	230105-76	BTA-15K	
R12	100Ω		230104-50	BTS-100	
R13	220K		230104-90	BTS-220K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MAGNAVOX PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R14	100Ω		230104-50	BTS-100	
R15	100Ω		230104-50	BTS-100	
R16	100Ω		230104-50	BTS-100	
R17	2200Ω		230104-66	BTS-2200	
R18	150K		230104-88	BTS-150K	
R19	15K		230104-76	BTS-15K	
R20	1000Ω		230104-62	BTS-1000	
R21	220K		230104-90	BTS-220K	
R22	270Ω	2	230106-56	BTB-270	
R23	8200Ω	1	230105-73	BTA-8200	
R24	125Ω	10	240021-11	PW10-150	
R25	75Ω	10	240021-16	PW10-75	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @1.36A	570VCT @.220A	5VAC @ 6A	6.3VAC @2.9A	300086-1	P9739 ①	P-3055 ②	P-8167 ①	26R33 ③	R-61BC④

① Tape 6.3V @ 8.5A winding.
② Tape 6.3V @ 10A winding.
③ Tape low HV winding. Tape 6.3V @ 5A winding. Parallel and phase 5V windings.
④ Tape 6.3V @ 8.5A and 6.3V @ 1.2A winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5600Ω	4Ω tap @ 3Ω	330024-1						Low Frequency
T3	2700Ω	16Ω tap @ 8Ω	330042-1	Z1104 ①					High Frequency ① Tape 4Ω tap.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MAGNAVOX PART No.	QUAM PART No.	RCA TYPE No.	
	15"		8Ω	583746-1			① Horn type
	12"		8Ω	583666-1			
			16Ω	580042-1①			
	12"		8Ω	583641-1			
	12"		8Ω	583660-1			

COILS (RF-IF)

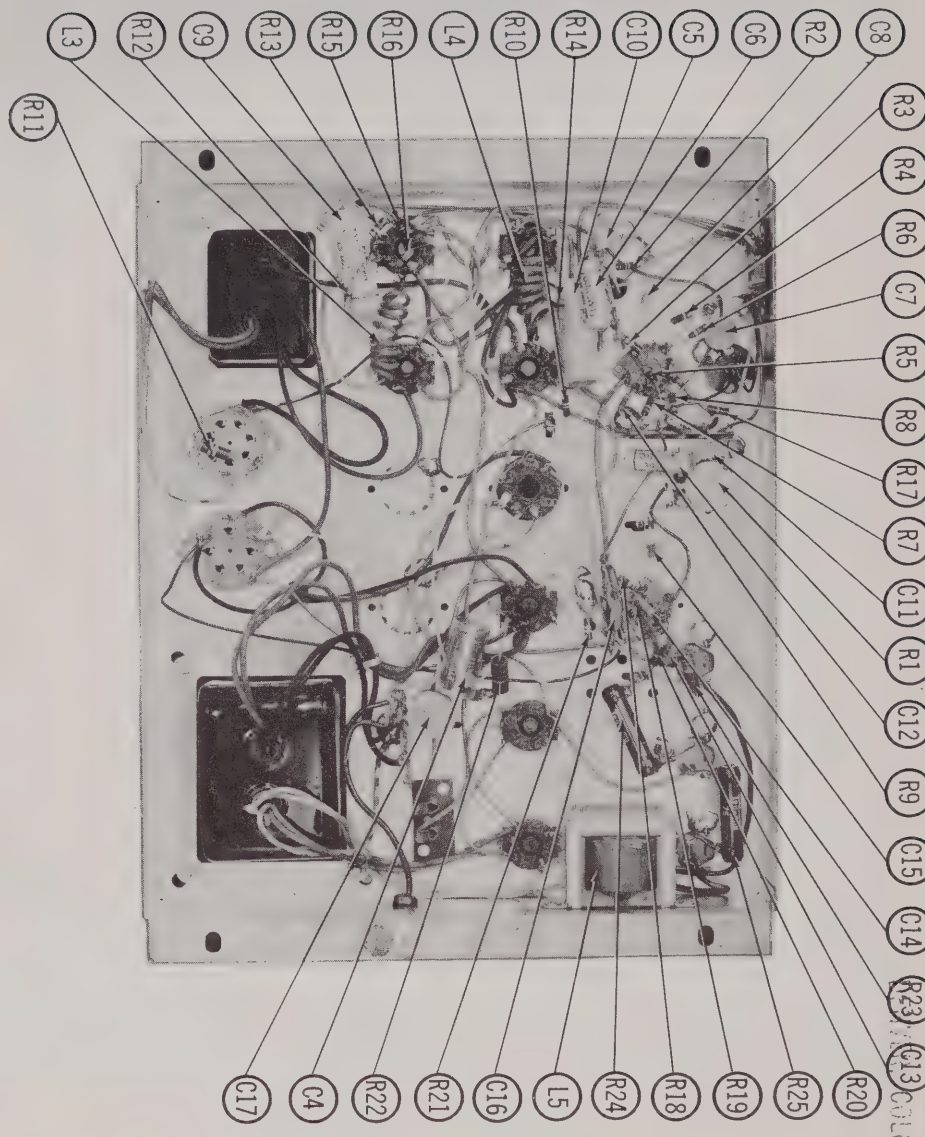
ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MAGNAVOX PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Cross-over Choke	480Ω		360639-1				540 Millihenries
L2	Cross-over Choke	480Ω		360639-1				540 Millihenries
L3	RF Choke	0Ω		360575-1				1.2 Microhenries
L4	RF Choke	0Ω		360575-1				1.2 Microhenries

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L5	.047A	56Ω	1HY	320041-2	C5040		C-2327	26C44 ①	C-23X ①

① Drill one new mounting hole.

CHASSIS—BOTTOM VIEW



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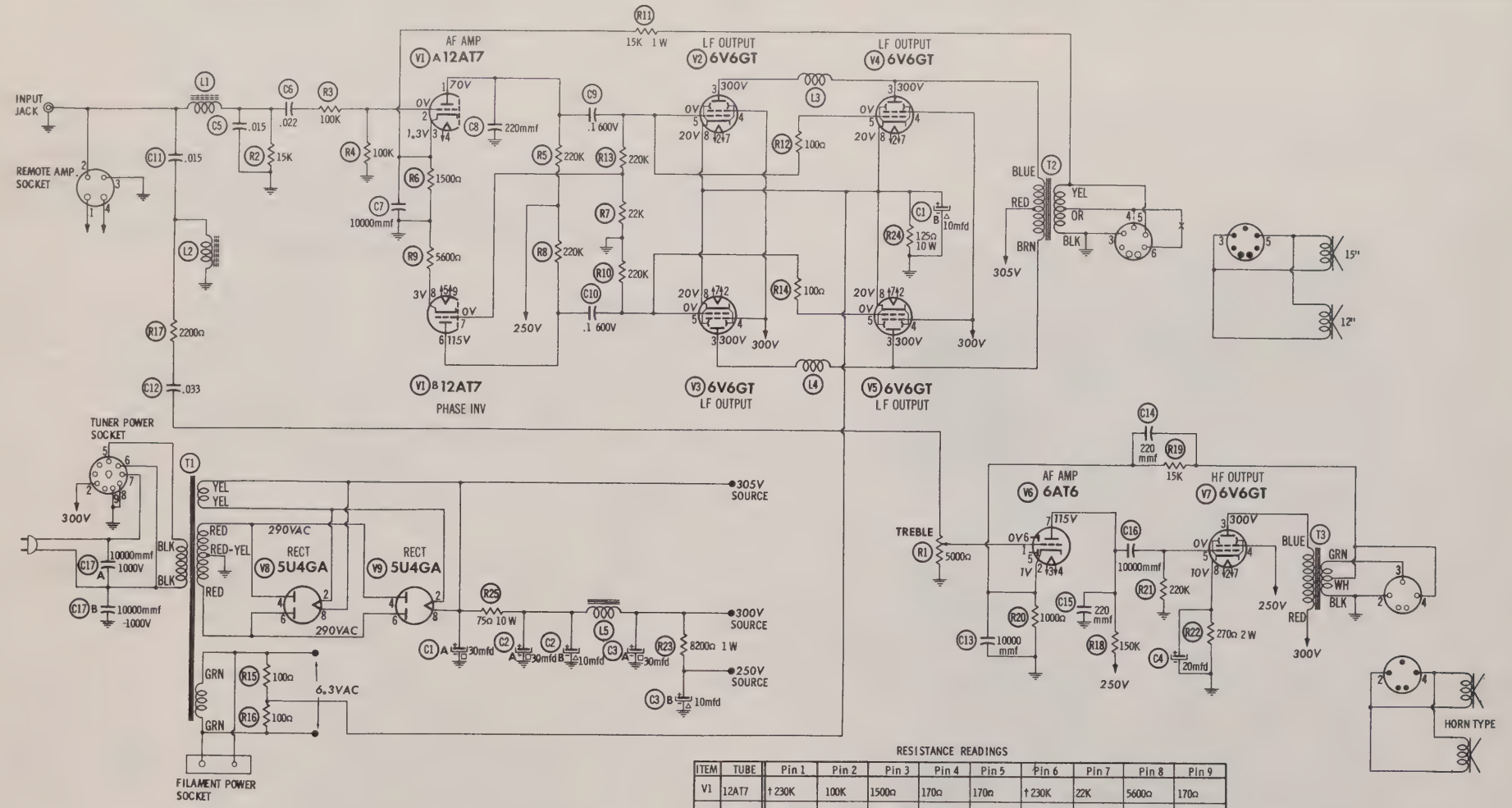
MAGNAVOX
CHASSIS AMP-150AA

SET 345 FOLDER 6



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	†230K	100K	1500Ω	170Ω	170Ω	†230K	22K	5600Ω	170Ω
V2	6V6GT	NC	170Ω	†100Ω	†110Ω	240K	TP	170Ω	125Ω	
V3	6V6GT	NC	170Ω	†100Ω	†110Ω	220K	NC	170Ω	125Ω	
V4	6V6GT	NC	170Ω	†100Ω	†110Ω	240K	TP	170Ω	125Ω	
V5	6V6GT	NC	170Ω	†100Ω	†110Ω	220K	TP	170Ω	125Ω	
V6	6AT6	0Ω	1000Ω	170Ω	170Ω	NC	NC	†160K		
V7	6V6GT	NC	170Ω	†160Ω	†8300Ω	220K	NC	170Ω	270Ω	
V8	5U4GA	NC	1Meg	NC	24Ω	NC	24Ω	NC	1Meg	
V9	5U4GA	NC	1Meg	NC	24Ω	NC	24Ω	NC	1Meg	

† MEASURED FROM PIN 8 OF V9.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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MAGNECORD
MODEL F-35B

GENERAL INFORMATION

The Model F-35B Tape Recorder features Stop, Forward, Rewind, Play, and Record modes of operation merely by turning a knob. This recorder is of the dual-track type, giving two full length recordings on a single reel of recording tape. Any size reel up to 7" can be used. A record level indicator simplify the recording level setting. New recordings can be made on previously recorded tape since the erase head is automatically connected when the "Record" button is pressed or the same recording may be played back indefinitely. Recordings can be made from a radio, television receiver, or phonograph, in addition to those made directly from the microphone. Recordings can be played back through the self-contained speaker or an external speaker may be connected through use of the Speaker Jack.

Size Reel	3 3/4" Speed	7 1/2" Speed
5" (600 ft.)	1 hour	1/2 hour
7" (1200 ft.)	2 hours	1 hour

Model F-35B is designed to operate on either 50 or 60 cycle power but a change of capstan are necessary to change one from the other.

CAUTION: Severe Damage Will Result If Connection Is Made To A Direct Current (DC) Line.

Manufactured by:

Magnecord Inc.
1101 South Kilbourn Ave.
Chicago 24, Ill.

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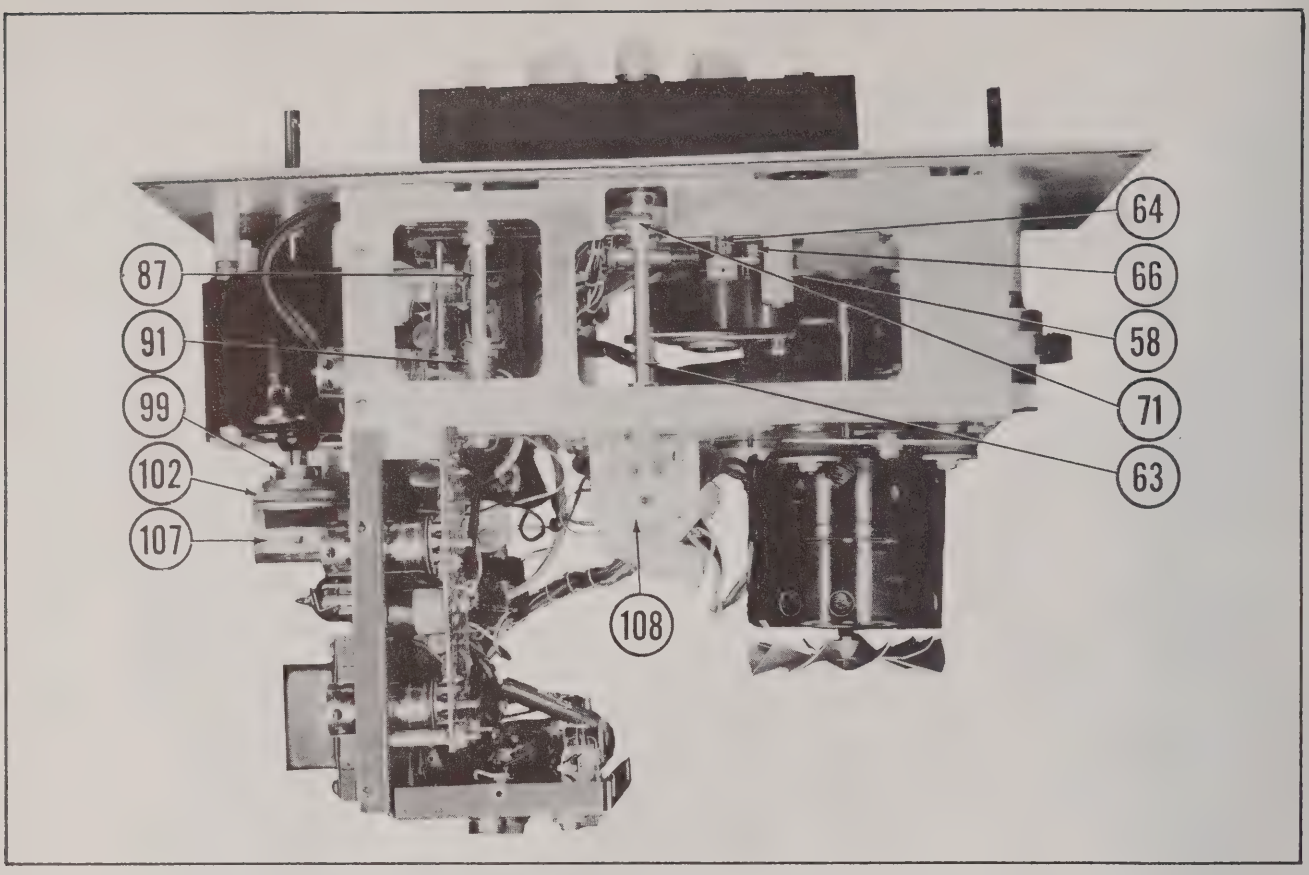

FIGURE 1

SPECIFICATIONS

Tape Speeds: 3 3/4" and 7 1/2" by capstan change.

Frequency Response: At 3 3/4" — plus or minus 2 db, 50-5000, extended range to 7,000 cycles.

Playing Time At 3 3/4": 2 hours half track.

Playing Time At 7 1/2": 1 hour half track.

Reel Size: Up to 7"

Rewind Time: 40 seconds.

Signal To Noise Ratio: 45 db, half track.

Monitoring: Phone Jack on front.

Flutter: .3%

Input: High impedance microphone.

Radio Phono: High level.

Playback Amplifier: 8 watts output. Phono jack for external speaker. Low impedance cathode follower output for feeding external hi-fi system. Speaker size 6" x 9".

Weight: Approximately 40 lbs.

Power Consumption: 115 watts.

Portable Unit: In brown leather case with brushed brass panel.

OPERATING INSTRUCTIONS

1. Unpack the recorder and set the unit on a flat surface.

2. Remove the lid from the recorder. And remove empty plastic reel in lid.

3. Remove the AC power cord from the lid of the recorder, and plug in to the receptacle on the back of the unit.

4. After making sure that On-Off-Volume control is in the "Off" position, plug the power cord into a convenient 110 volts 60 cycles power socket.

Threading The Tape-

Place a full reel of tape on the left hand reel spindle so that tape will unwind when the reel rotates clockwise. The shiny side of the tape should be on the outside, or in other words, the dull side of the tape should face the heads.

Pull forward and down on the head cover (4). The head cover is held both in the up and down positions by spring tension, and when in the down position gives access to the two heads, pressure roller and capstan for loading, editing and cleaning.

With the head cover down and tape on the left hand spindle, thread the tape under the guide rod (20); (located between the pay-off reel and the first head) then over the first head and over the rod between the heads, and over the second head but under the metal head cap, between the rubber pressure roller (7) and

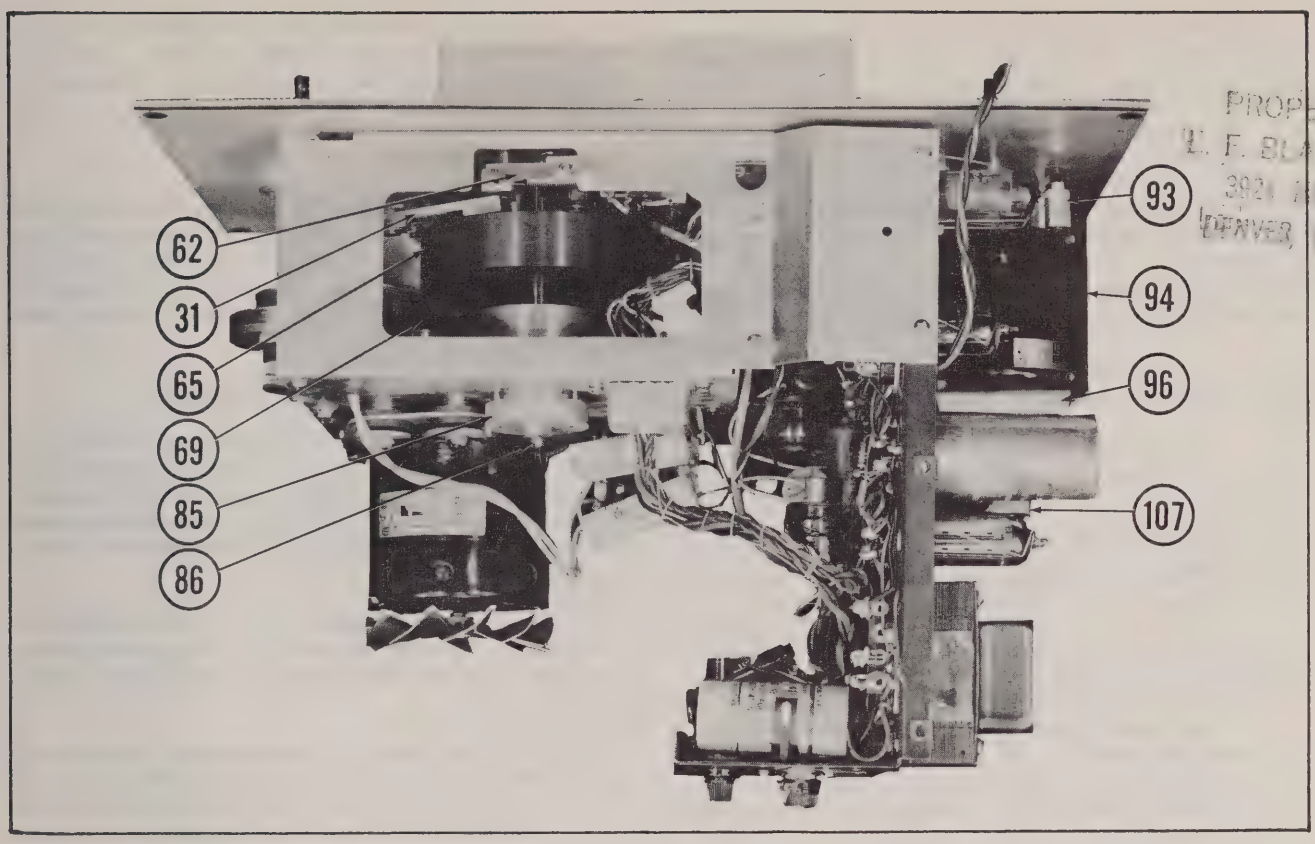

FIGURE 2

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metal capstan (9), and onto the take-up reel. Place the loose end of the tape in one of the slots in the hub of the empty reel and rotate the empty reel clockwise a few turns so as to secure the tape. Reel up a few feet of leader tape by turning the "Fast Forward" knob clockwise until the take-up reel begins to turn.

NOTE: The "Fast Forward" knob should be used only when the control knob is in the "Stop" position.

Speed Change-

The recorder comes with a 7 1/2 inch per second capstan and pressure roller on the machine. In the two manila bags are the set of 3 3/4 inch per second capstan and pressure roller. The 3 3/4" per second pressure roller and capstan set consists of the larger pressure roller and smaller metal capstan. To change the operating speed of the recorder, place the head cover in the down position and unscrew the knurled screws holding the pressure roller and capstan to the recorder. These screws tighten when turned clockwise. When tightening the capstan and pressure roller screws, use only the fingers, never any tools. The longest of the two knurled screws is for the bottom or capstan shaft.

NOTE: After selecting the speed you desire, make sure that the slide switch located on the back of the unit is in the position corresponding to the operating speed.

To Record From Microphone-

1. Secure the line cord to the prongs provided at the rear of the case and plug the line cord into a 110 volt, 60 cycle AC outlet. Then connect the microphone cable to the connector marked "Mike", also at the rear of the unit.

2. After selecting speed and setting the corresponding equalization switch, load the recorder with tape as described under "Threading The Tape".

3. Turn the "Volume" control clockwise until the unit turns "On" and allow about 30 seconds for tubes to warm up.

4. Depress the "Record" button and turn the "Control" knob to "Forward".

5. Adjust the "Volume" control to the proper recording level. Proper recording level is indicated when the needle on the Record Level Indicator reaches zero on the peaks or loudest parts of selection being recorded.

NOTE: The speaker is disconnected when the recorder is in record position. This prevents squealing or extra noises from being recorded on the tape. In order to monitor the recording a monitor jack is provided on the front panel for plug in headphones.

NOTE: Due to the internal hook up of the amplifier, it is necessary to disconnect the microphone before recording from a tuner or phonograph.

Double-Track Recording-

The Magnecord Model F-35B is designed so that only 1/2 the tape width is recorded at a time, thereby resulting in double-track recording. This double-track operation is accomplished in the following manner:

1. After a reel of tape has been recorded, i.e. all the tape wound on to the take-up reel, depress the "Stop" button. This stops all movement of the tape.

2. Remove the reels from the recorder, turning the full reel over and placing it on the left spindle and the empty reel on the right spindle.

3. Properly thread the tape and proceed with the recording.

4. After the second track has been recorded the first track is ready to be played, without rewinding, as follows:

(a) Place the full reel of tape on the left spindle and the empty reel on the right spindle.

(b) Thread the tape making sure the dull side faces the play-record head.

(c) Set the controls as described under "To Play A Recording".

To Play A Recording-

1. Thread the tape as described under "Threading The Tape".

2. Turn the On-Off-Volume control to the right and allow 30 seconds for warm up.

3. Set tape in motion by putting "Control Knob" in "Forward" position.

4. Adjust the "Volume" and "Tone" control for desired level.

To Edit And Splice Tape-

NOTE: Since it is impossible to edit and splice one track without affecting the other, recordings which are to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections, etc. Unused sections of tape can be spliced together for re-use.

(a) Cut tape at 60^{o} angle with an overlap so ends will line up. (Cutting tape at 60^{o} angle will eliminate detection of splice on recording.)

(b) Align both ends of tape, with glossy side up.

(c) Cover aligned ends with splicing tape, evenly and securely.

(d) Trim off excess splicing tape. (Cut into the recording tape very slightly.) This eliminates possibility of a sticky splice.

FUNCTION OF CONTROLS

Volume Control And On/Off Switch-

The control at the left side of the recorder is the volume control and On/Off switch. Turning the control in a clockwise direction turns on the recorder and increases the volume of the tape selection being played. This control also is used to control the volume of any recording being made.

CAUTION: Never turn recorder Off or pull AC cord while recorder is in Rewind as this will cause the tape to spill or brake.

The main control knob (1) controls the three main mechanical functions of the recorder. The center position is Stop, the right position is "Forward", and the left position is "Rewind".

Fast Forward Control-

The "Fast Forward" control is the knob on the right side of the front panel. This control will only function when "Main Control" knob is in "Stop" position. To place recorder in "Fast Forward", turn control to the right and hold. To stop recorder, release control.

Tone Control And Speaker Cut-Off Switch-

The tone control and speaker cut-off switch is located on the rear panel. This control regulates the tone of any tape being played back on the machine. Turning the control in a clockwise direction increase the bass, and turning it in a counter-clockwise direction increase the treble.

The speaker cut-off switch is also located on this control. Turning the control in a counter-clockwise direction, until a click is heard or felt, shuts off the speaker.

NOTE: It is necessary to regulate the Tone Control while recording as it is not in the circuit. It is, however, a good practice to switch off the speaker while recording to reduce the possibility of noise in the recording.

Equalizing Switch-

The "Equalizing Switch" is a slide switch located on the rear of the recorder. The function of this switch is to provide proper equalization in the record position so that the proper tone will be reproduced when the tape is played back. The switch is marked "F" "S", representing Fast Speed (7 1/2" per second), and Slow Speed (3 3/4" per second). This switch should be set correctly any time a recording is made. This switch has no effect when playing back a recorded tape.

Record Button-

The "Record Button" is located on the front of the recorder under the "Volume" control. To operate this control, depress it and then turn "Control" knob (1) to "Forward" position. When the recording is finished simply turn the Control Knob (1) to "Stop" and the recorder automatically returns to "Playback" position. This prevents accidental erasure of the recorded material.

ADJUSTMENTS

Head Alignment-

The primary purpose in head alignment is to provide the maximum frequency response. For this purpose it is not necessary to adjust the erase head.

NOTE: Before attempting to align the record/reproduce head make certain that the difficulty is not due to an accumulation of tape coating residue on the pole surface.

Alignment Of Record/Reproduce Head-

1. The right mounting screw of the record-reproduce head is drawn up securely. This side of

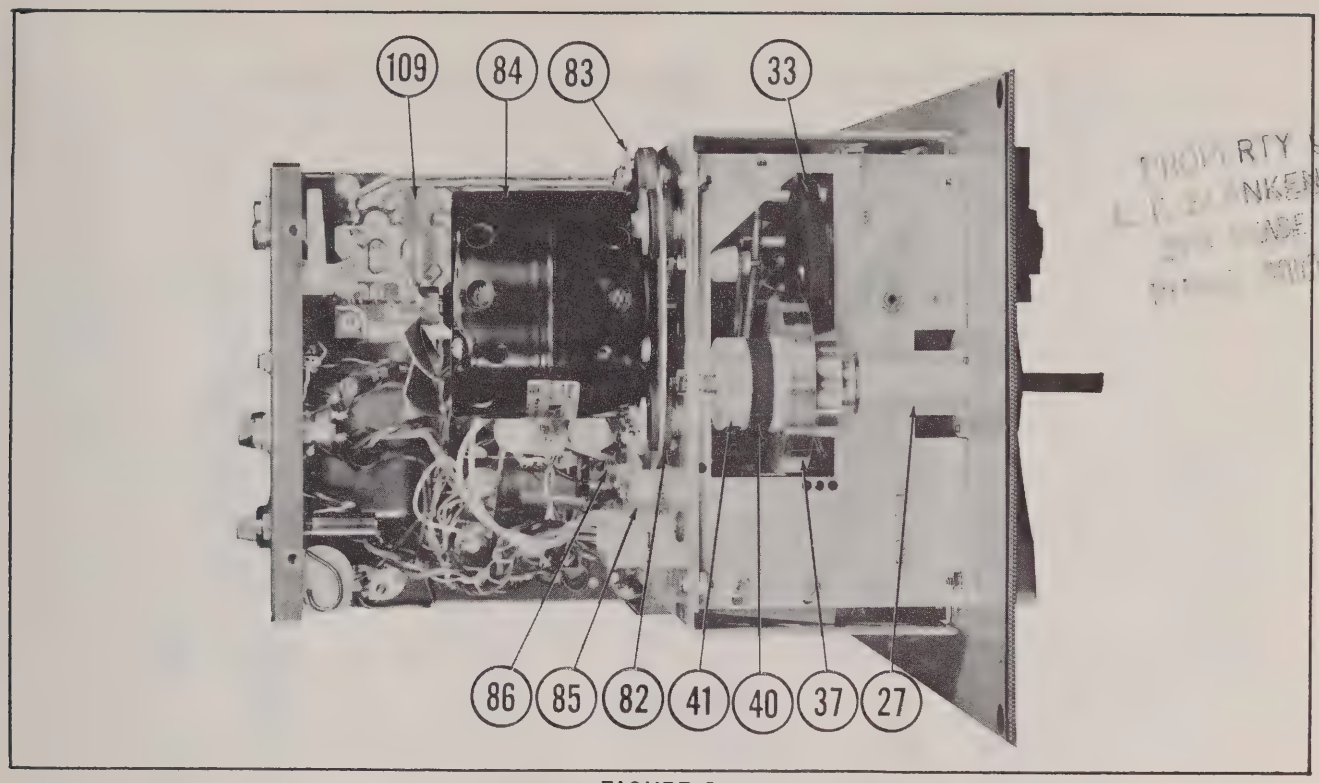

FIGURE 3

the head holder is provided with a rocker action. The left adjustment screw (19) is associated with a compression spring. Rotating this screw changes the gap alignment with respect to the tape. Proper alignment is achieved when the maximum signal, at a given setting of the gain control is reproduced from the alignment tape, as the alignment screw (19) is turned in or out.

Rewind Drag Adjustment-

Adjustment to this friction drag system are measured by means of a 0 to 1 pound spring scale on one end of a string wound several times around the hub of a 7" reel mounted in the normal manner on the rewind hub. Since the drag is being measured, the string should be wound on the reel to lead off in a clockwise direction and the spring scale should be pulled slowly upward against the friction drag. When properly adjusted, it should take about 4 to 5 ounces to rotate the reel.

Readjust by loosening the socket head set screw in the knurled split nut (107). Then rotate this nut, lock the nut with the set screw after each adjustment and before measuring the result.

Takeup Torque Adjustment-

The torque transmitted to the take-up shaft should be measured in a similar manner to that described above under "Rewind Drag Adjustment". With the spring scale pulling the string vertically upward, with power on and recorder running forward, a reading of 4 to 5 ounces should be obtained.

The amount of torque is determined by the amount of pressure exerted on the take-up friction wheel (37) by friction felts (36 and 38). Tightening knurled-split nut (41) increase the torque. Always loosen set screw in the split nut before adjusting and retighten before running or measuring.

MECHANICAL OPERATION

Flywheel And Capstan-

The balanced flywheel and capstan (65), which is driven by two rubber-tired wheels (69), provide a constant speed for the tape.

Pressure Roller-

The pressure roller (7), which is actuated by control knob (1) through the media of switch control shaft (63) and pressure roller pivot bracket (58), keeps a positive pressure against the tape and capstan to aid in maintaining the constant rate of tape travel.

Hi-Speed Forward-

The Hi-Speed Forward is put into operation by turning the Hi-Speed Forward control knob (2), which in turn, actuates control shaft and wire (64), pivot arm and wire (31), and the fast forward wheel mounting bracket (30). This pulls the fast forward wheel (33) into contact with the motor drive shaft and the tape-up hub (34). Simultaneously pivot arm (31) moves against the fast forward actuating switch (112), starting the main drive motor (84).

Rewind System-

When control knob (1) is placed in "Rewind", rewind switch (113) is actuated starting the rewind motor (94). Actuating arm (72) pulls the forward idler wheel (46) away from the take-up hub (37), allowing the ball bearing mounted take-up shaft (11) to turn freely. When the rewind operation is completed, and control knob (1) is returned to the "stop" position, the actuating arm (72) moves back to its original position. This allows the forward idler wheel (46) to contact the take-up hub (37) applying a braking force sufficient to stop reel.

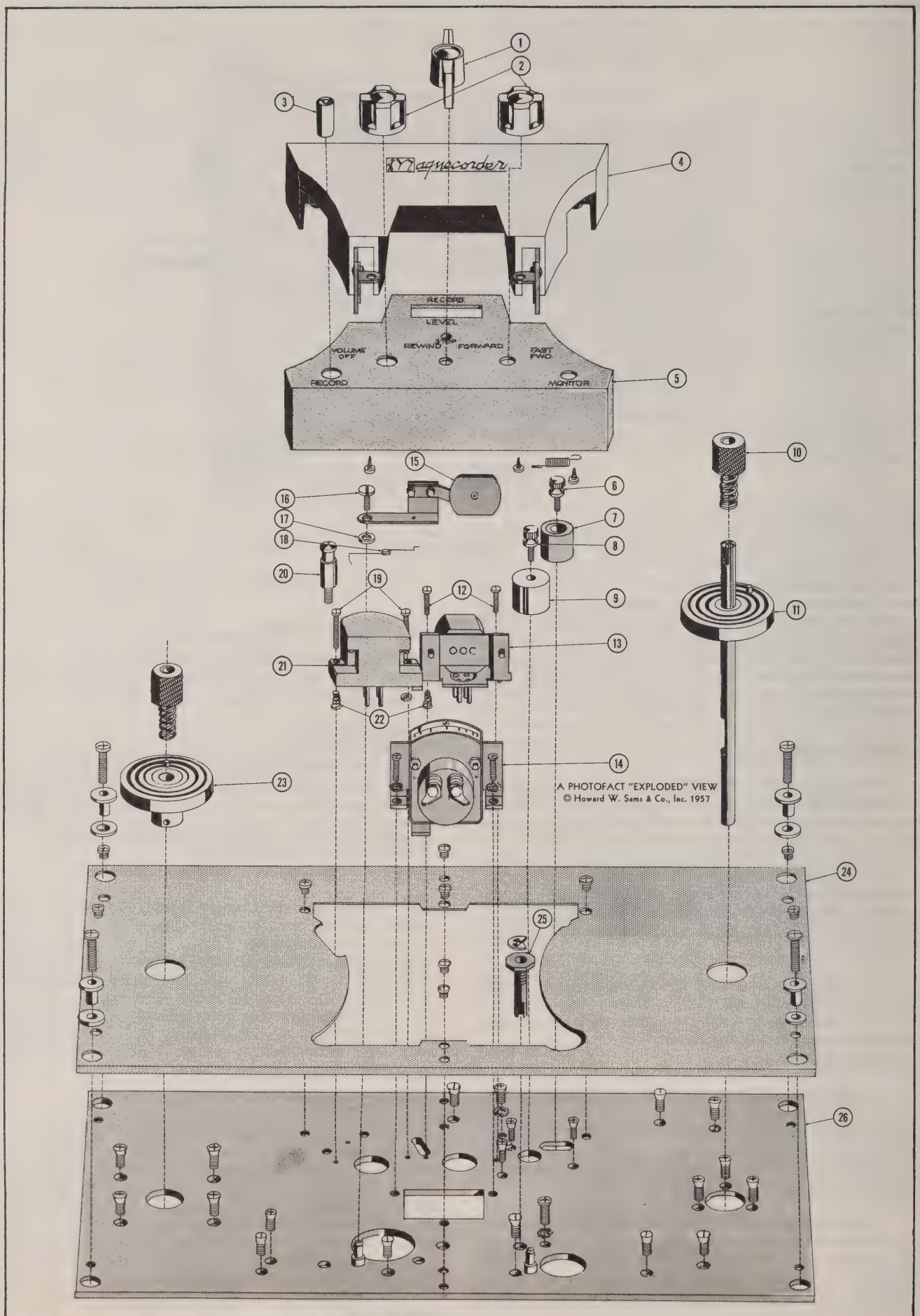

FIGURE 4A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE.

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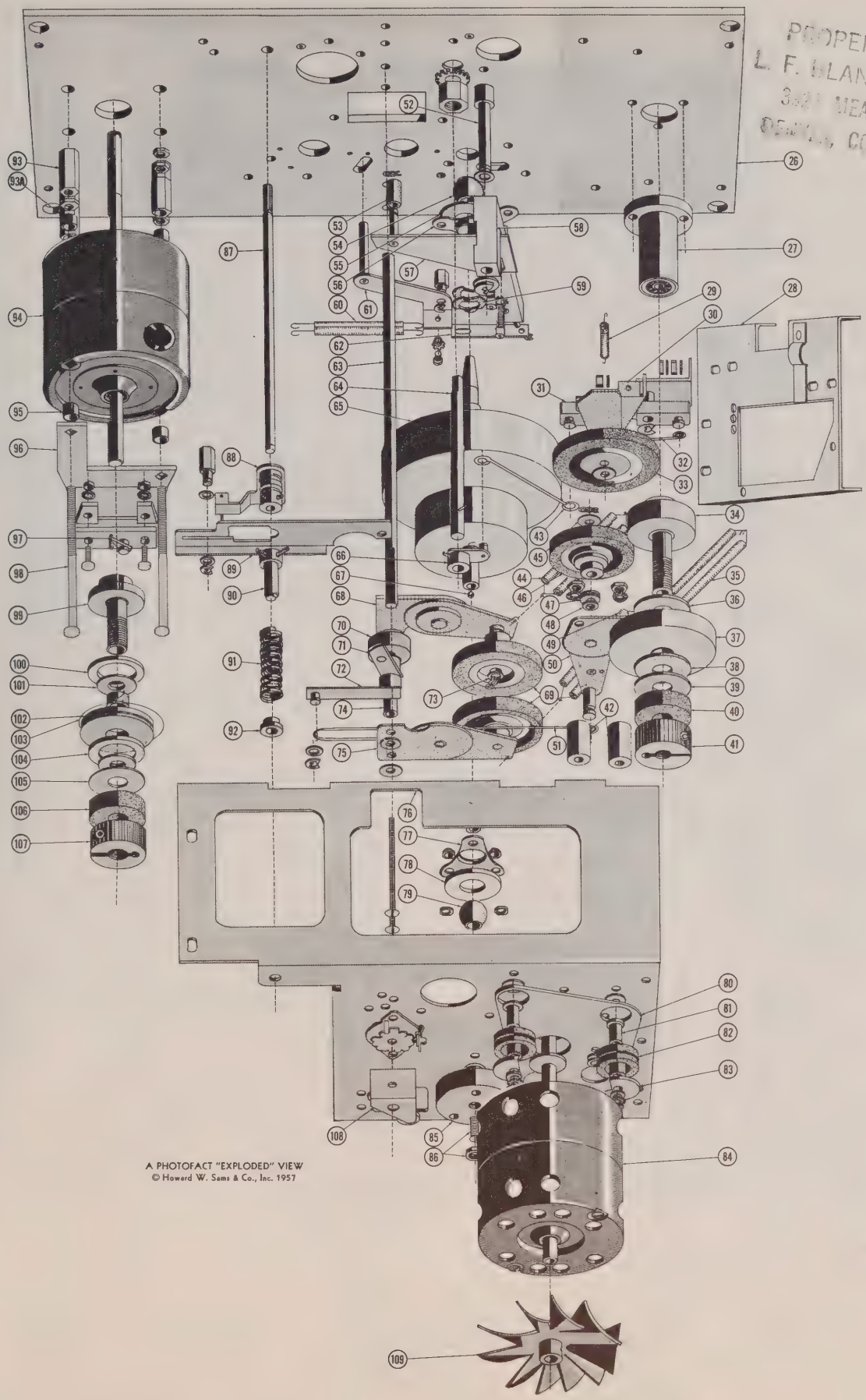
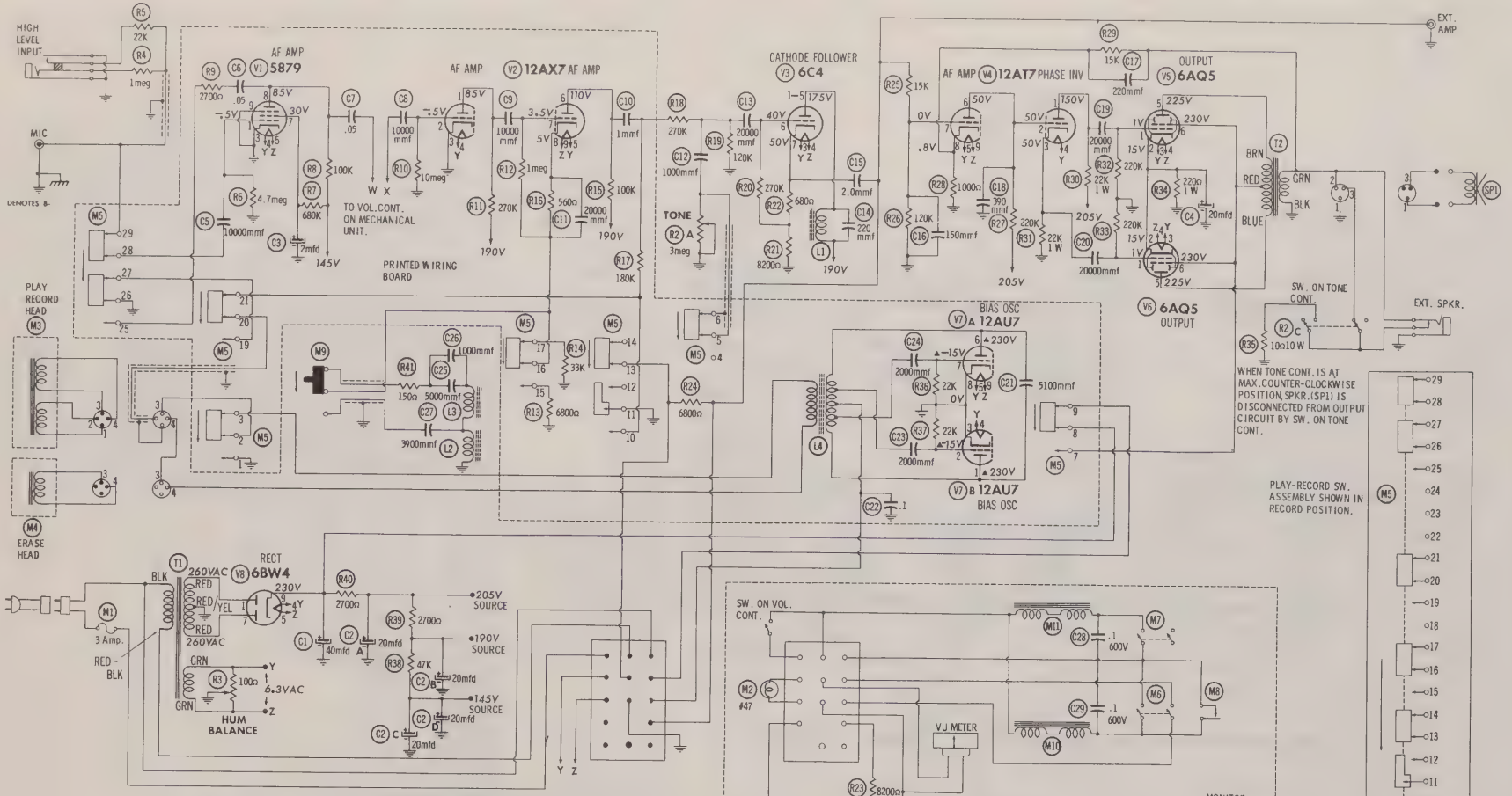


FIGURE 4B. EXPLODED VIEW OF PARTS BELOW BASEPLATE.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	5879	4.7Meg	TP	0Ω	45Ω	45Ω	TP	†730K	†150K	0Ω
V2	12AX7	†274K	10Meg	0Ω	45Ω	45Ω	†104K	1Meg	▲33K 7500Ω	45Ω
V3	6C4	†5800Ω	NC	45Ω	45Ω	†5800Ω	278K	8500Ω		
V4	12AT7	†25K	†222K	22K	45Ω	45Ω	†222K	27K	1000Ω	45Ω
V5	6AQ5	220K	220Ω	45Ω	45Ω	†155Ω	†0Ω			
V6	6AQ5	220K	220Ω	45Ω	45Ω	†210Ω	†0Ω			
V7	12AU7	▲†5Ω	22K	0Ω	45Ω	45Ω	▲†5Ω	22K	0Ω	45Ω
V8	6BW4	110Ω	NC	NC	45Ω	45Ω	TP	110Ω	NC	20K

† MEASURED FROM PIN 9 OF V8.
NC NO CONNECTION
TP TIE POINT
▲ MEASURED IN "RECORD" POSITION.
ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE NOTED.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	5879	
V2	AF Amplifier	12AX7	
V3	Cathode Follower	6C4	
V4	AF Amplifier Phase Inv.	12AT7	
V5	Output	6AQ5	
V6	Output	6AQ5	
V7	Bias Osc.	12AU7	
V8	Bias Osc. Rectifier	6BW4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MAGNECORD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	40	450		PRS450V40	BR4045	TC78	TD-40-450		TVA-1712
C2A	▲20	450		AFH4-14	D0130	FP444	TMQ-12	Q-040	TVL-4763
B	■20	450							
C	▲20	450							
D	20	450							
C3	2	350		PRS450V2	BR245	TC60	TD-2-450	MT-4501	TVA-1701
								MT-4501	
C4	20	25		PRS50V20	BR202	TC26	TD-25-25	FM-0225	TVA-1205

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

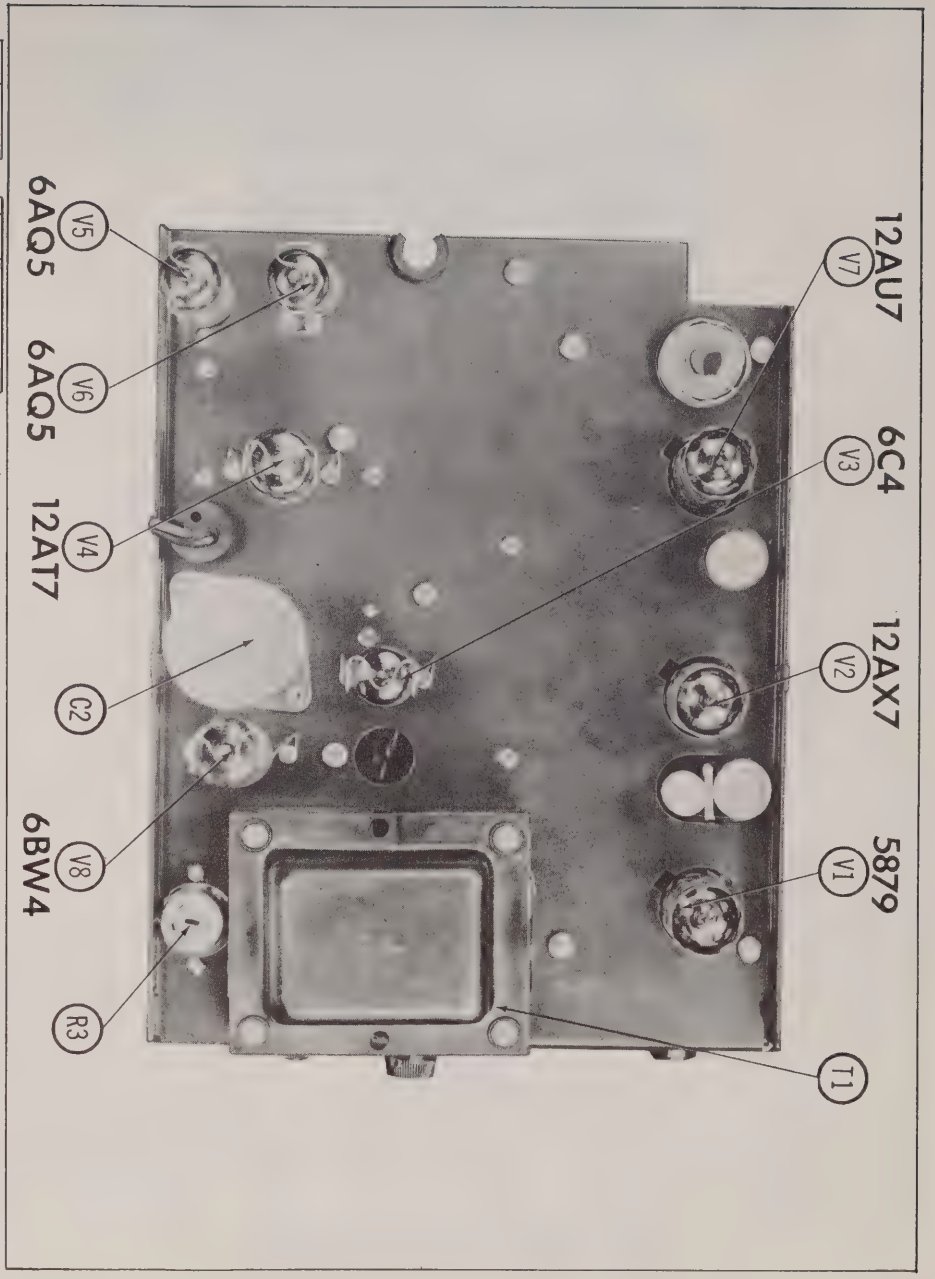
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MAGNECORD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	10000			BPD-01	DD-103	K082	ED-001	DC-511	5HK-S1	
C6	.05	200		BPD-05	DF-503	CUB-2S5				
C7	.05	400		BPD-05	DF-503	CUB-4S5		ACE615	4SE-S47	
C8	10000			BPD-01	DD-103	K082	ED-01	DC-511	5HK-S1	
C9	10000			BPD-01	DD-103	K082	ED-01	DC-511	5HK-S1	
C10	1	400		P488N-1	DF-104			ACE601	4SE-P10	
C11	20000			BPD-02	DD-203	K085	ED-002		5HK-S2	
C12	1000			BPD-001	D6-102	K069	ED-1000	DC-521	5HK-D1	
C13	20000			BPD-01	DD-203	K085	ED-002		5HK-S2	
C14	220			BPD-0002	DD-221	G051	ED-220	UC-5322	5GA-T22	
C15	2.0	200		P282Z-20		MTM-2W2				
C16	150			BPD-00015	DD-151	G046	ED-150	UC-5315	5GA-T15	
C17	220			BPD-0002	DD-221	G051	ED-220	UC-5322	5GA-T22	
C18	390			SI-390	DD-391	G058	ED-390	UC-5339	5GA-T39	
C19	20000			BPD-02	DD-203	K085	ED-002		5HK-S2	
C20	20000			BPD-02	DD-203	K085	ED-002		5HK-S2	
C21	51			1468-000051		5W5Q51			MS-451	
C22	.1	400		P488N-1	DF-104	CUB-4P1		GEM-401	4TM-P1	
C23	2000			BPD-002	DD-202	K072	GP-2000	DC-522	5HK-D2	
C24	2000			BPD-002	DD-202	K072	GP-2000	DC-522	5HK-D2	
C25	5000			BPD-005	DD-502	K080	ED-005	DC-525	5HK-D5	
C26	1000			BPD-001	DD-102	K069	ED-1000	DC-521	5HK-D1	
C27	3900			1464-0039		1W5D39			MS-239	
C28	1	600		P688N-1	DF-104	CUB-6P1		GEM-601	6TM-P1	
C29	1	600		P688N-1	DF-104	CUB-6P1		GEM-501	6TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MAGNECORD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½		AB-60	A47-500K-Z	Q13-133	U48	Volume Control
R1B								Not Used In Circuit
C				AK-3	FS-3	Not Req.	Not Req.	Shaft (Attach to R1A)
D				KB-1	SWE-12	76-1	US-26	Switch (Attach to R1A)
R2A	3Meg	½		B-85	A47-3Meg-Z	Q13-140	U57	Tone
B				Not Req.	RS-2	Not Req.	Not Req.	Shaft (Attach to R2A)
C				KB2	SWE-20	76-2	US-27	Switch (Attach to R2A)
R3A	100Ω	2www						Hum Balance

* Used As (Off Speaker Switch).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MAGNECORD PART No.	IRC PART No.	
R4	1Meg			BTS-1Meg	
R5	22K			BTS-22K	
R6	4.7Meg			BTS-4.7Meg	
R7	680K			BTS-680K	
R8	100K 5%			BTS-100K	
R9	2700Ω			BTS-2700	
R10	10Meg			BTS-10Meg	
R11	270K			BTS-270K	
R12	1Meg			BTS-1Meg	
R13	6800Ω			BTS-6800	
R14	33K			BTS-33K	
R15	100K			BTS-100K	
R16	560Ω			BTS-560	
R17	180K			BTS-180K	
R18	270K			BTS-270K	
R19	120K			BTS-120K	
R20	270K			BTS-270K	
R21	8200Ω			BTS-8200	
R22	680Ω			BTS-680	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MAGNECORD PART No.	IRC PART No.	
R23	8200Ω			BTS-8200	
R24	6800Ω			BTS-6800	
R25	15K			BTS-15K	
R26	120K			BTS-120K	
R27	220K			BTS-220K	
R28	1000Ω			BTS-1000	
R29	15K			BTS-15K	
R30	22K 5%	1		BTA-22K	
R31	22K 5%	1		BTA-22K	
R32	220K			BTS-220K	
R33	220K			BTS-220K	
R34	220Ω	1		BTA-220	
R35	10Ω	10		PW10-10	
R36	22K			BTS-22K	
R37	22K			BTS-22K	
R38	47K			BTS-47K	
R39	2700Ω			BTS-2700	
R40	2700Ω			BTS-2700	
R41	150Ω			BTS-150	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MAGNECORD PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Tone Choke	90Ω		31X35				
L2	Tone Choke	90Ω		31X35				
L3	Tone Choke	82Ω		31X42				
L4	Bias Osc.	.1Ω	7.8Ω*					* Tapped ⓐ 1.8Ω, 3.3Ω, 4.8Ω

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MAGNECORD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ .48A	525VCT ⓐ .080A	6.3V ⓐ 3A		C110					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MAGNECORD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7.3KΩ CT	6-8Ω	C109	Z1007 ①②	A-2904 ①②	A-3870 ②	22S58 ③	S-55X ②	

① Drill one new mtg. hole.
② Use secondary taps 5 & 6.
③ Use 7,000ΩCT impedance winding on primary & 8Ω impedance tap on secondary.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MAGNECORD PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6" x 9"	PM	6-8Ω		69A1Z8		

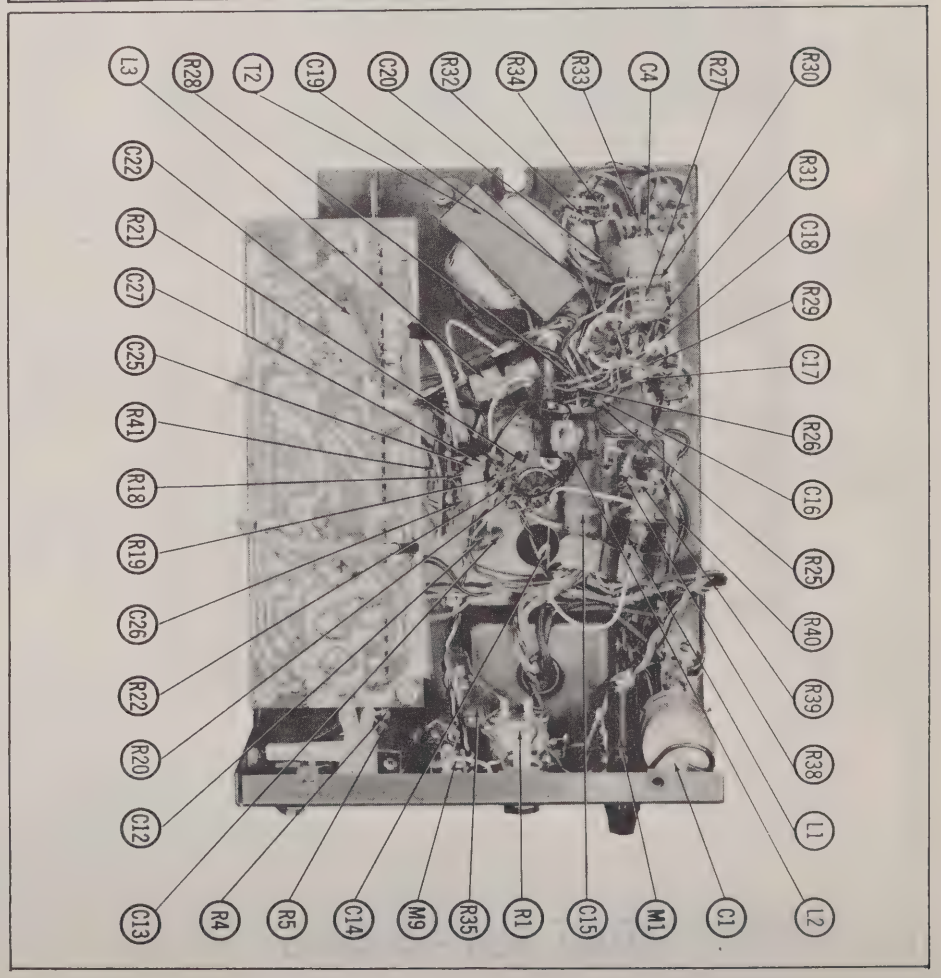
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MAGNECORD PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 250V			312003. (3AG34)	342001	AGC3	HKP

CHASSIS—BOTTOM VIEW

MISCELLANEOUS

ITEM No.	PART NAME	MAGNECORD PART No.	NOTES
M2	Lamp	41X23	#47
M3	Head	91A1713	Record
M4	Head	91A167	Erase
M5	Switch		Record-Play (24 Term Slide Type)
M6	Switch	43A12	Drive Motor DPST
M7	Switch	43A12	Rewind Motor DPST
M8	Switch	91A1060	Micro
M9	Switch		Tape Speed (SPDT Slide Type)
M10	Motor	35C-54	Drive
M11	Motor	91C892	Rewind
	Knob	87B30	Off-On-Volume
	Knob	87A28	Record Interlock
	Knob	87A27	Fast Forward



The "one-way" pawl actuated clutch on the rear shaft extension of the rewind motor (94), operates in such a manner so that as the tape is unwound from the rewind spindle (23), a certain amount of drag is imparted to the motor shaft which is transmitted to the tape as tension. When rewinding, the pawl is disengaged from the ratchet disc (102) by the direction sensitive rewind pawl spring (103) which allows the motor shaft to turn freely. A rapid rewind results.

Take-Up System-

The take-up system is driven by the main drive motor (94) through to rubber-tired idler wheel (69), which are mounted on sliding suspension arm support (68 and 75), Idler wheels (69) are held in contact with the hub of the flywheel (65) and the forward motor shaft (84) by action of springs (44 and 49). This, in turn, drives the capstan (65), which is part of the flywheel shaft and, with the use of pinch roller (7), conveys the tape at a constant rate of speed.

The take-up shaft (11) is driven by the forward idler wheel (46), which makes contact with the forward motor shaft and the take-up hub (37). The take-up hub (37) is concentrically mounted on the take-up shaft (11) and is coupled to the shaft through a slipping assembly (34 thru 41) similar to that employed in the rewind system. With tape properly threaded on the recorder and the mechanism in "Forward", the take-up shaft (11) slips a certain amount due to the pressure applied on the tape by the slower running capstan and pressure roller. Consequently, the tension imparted to the tape causes the tape to move from one reel to the other without throwing or stalling.

CLEANING

The head assemblies, capstan and pressure roller are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. Use a soft cloth dipped in carbon tetrachloride to clean the head surfaces, capstan and pressure roller.

NOTE: The binder in the tape is soluble in carbon tetrachloride. Therefore, have the tape off of the machine when cleaning the heads; and be sure that all surfaces are dry of this cleaner before rethreading the tape.

CAUTION: Do not use a brush when cleaning the heads as this could possibly mar the pole surfaces.

LUBRICATION

1. Most moving parts in this recorder are located in "Oilife" bearings, which retain oil over long periods of time. The "Oilite" bearings are kept oil damp by felt pad. The pads should be oiled, not the shafts or bearing themselves.

CAUTION: Do not over-oil. Any excess oil seeps to the outer edges of the moving parts causing slippage in the drive mechanism. Should this ever occur, wipe off all parts thus affected with a clean soft cloth which has been dipped in carbon tetrachloride. The drive surfaces must be dry of oil to function properly.

(a) Forward Drive Motor. Two drops SAE #20 oil, front and back bearings every six months.

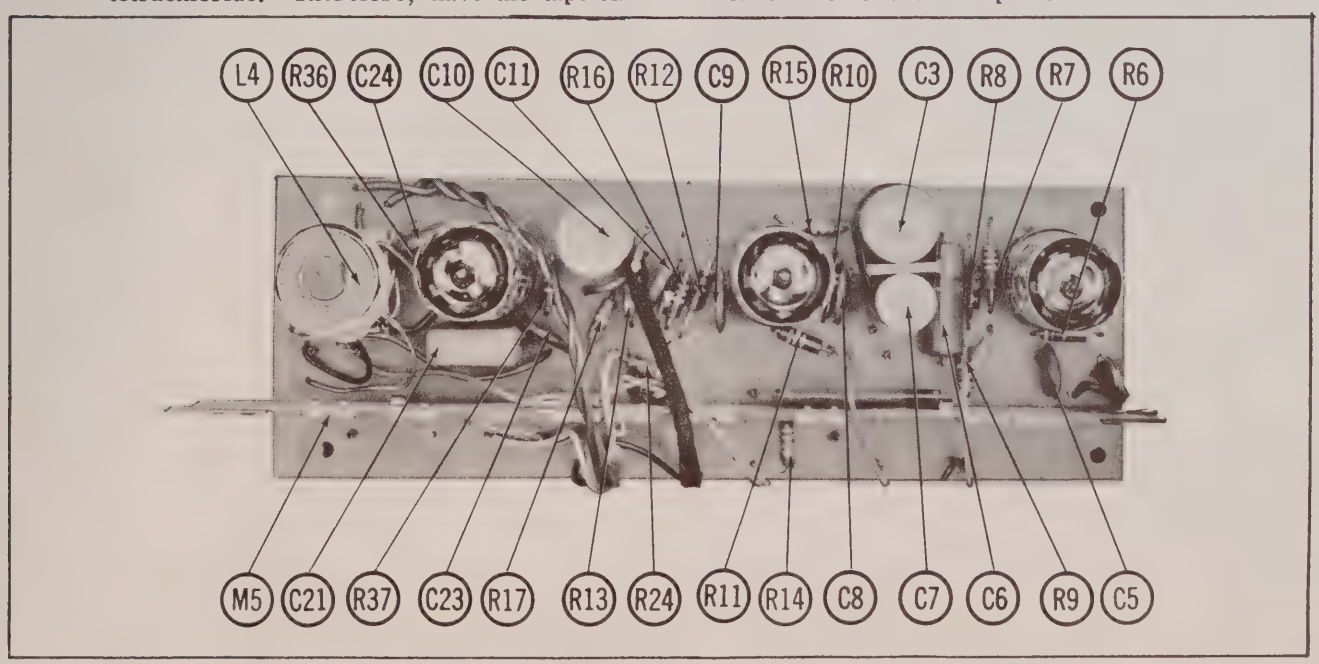
(b) Capstan Shaft Bearings. Two drops SAE #20 oil, front and back bearings every six months.

(c) Pressure Roller and Tape Guide Roller Shafts. Two drops of Finoil on each shaft, once a month.

CAUTION: It is important that there be no excess on these bearings, or it will be deposited on the tape.

(d) Idler Wheels. Equipped with felt washer at hub. One drop of SAE #20 oil on felt washer every six months.

(e) Rewind and Take-Up Clutch. Do not oil unless clutches begin to squeak; then one or two drops of oil on each of two felts pads.

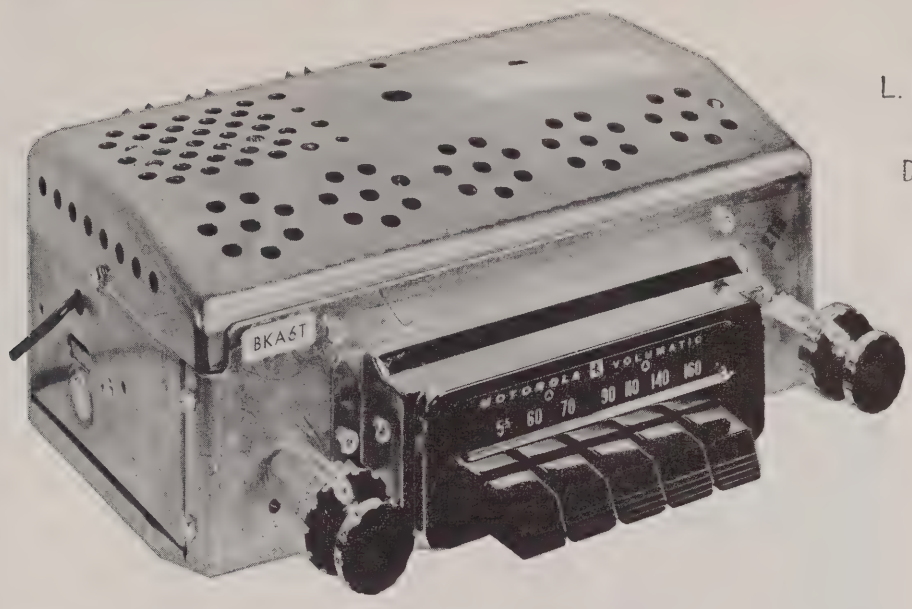


PRINTED CIRCUIT BOARD

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	87B30	Main Control Knob
2	87A27	Fast Forward Knob & On-Off Volume Knob
3	87A28	Record Interlock Knob
4		Upper Escutcheon
5		Lower Escutcheon
6	61-4K5	Knurled Screw
7	91A15	Pressure Roller 7 1/2 IPS
8	61-4K6	Knurled Head Screw 3/8 Long
9	75A15	Capstan 7 1/2 IPS
10	91A1731	Reel Retainer
11	91A725	Takeup And Spindle Shaft
12	61-2F1.8	Head Adjust Record/Playback Screws
13	91A1713	Record Head
14	46B4	V.U. Meter
15	91A1689	Head Shield Assembly
16	75A382	Shoulder Screw
17	71A576	Spacer Washer
18	77A67	Head Shield Lifter Spring
19	61-2F1.12	Head Adjust Erase Screws
20	75A401	Tape Bar Guide
21	91A167	Erase Head
22	77A25	Head Adjust Spring
23	91A1723	Rewind Reel Flange
24	71C565	Matte Panel
25	75A37	Hi Forward Sleeve
26	91C1715	Front Panel
27	91A52	Takeup Assembly Housing
28	91B1736	Side Panel, Fast Forward
29	77A35	Fast Forward Spring
30	91A1575	Puck Arm Assembly
31		Part of Item 30
32		Puck Arm Linkage
33	91X132	Fast Forward Puck
34	91A36	Takeup Hub
35	77A4	Springs (2 Reg.)
36	63A9	Felt Washer
37	91A38	Takeup Wheel
38	63A9	Felt Washer
39	63A10	Brass Washer
40	63A11	Sponge Washer
41	91A70-10	Lock Nut
42	75A44	Takeup Puck Plate Spacer
43		Puck Arm Linkage
44	77A4	Spring (2 Reg.)
45	63A17	Fibre Washer
46	91A30	Takeup Puck
47	63X16	Felt Drive Puck Washer
48	63A17	Fibre Washer
49	63A19	Spring (2 Reg.)
50	91A1229	Takeup Puck Plate Assembly
51		Takeup Puck Plate Assembly Linkage
52	76A92	Pressure Arm Shaft
53	74A13	Cam Follower
54	74A21	Capstan Front Bearing
55	63A8	Oil Retaining Washer
56	78A22	Bearing Retainer
57	91A214	Pressure Arm Plate
58	91A1683	Pressure Arm Assembly
59	63X98	Spring Washer
60	77A6	Pressure Roller Spring (2 Reg.)
61	91A1711	Tape Lifter Bar Assembly
62	71A70	Head Shield Spring
63	43B109	Switch Assembly Shaft & Switch
64	91A1687	Control Arm Shaft
65	91A1226	Capstan Shaft Assembly
66		Cam Part Of Control Arm Shaft (64)
67	78X28	Thrust Bearing
68	91A1244	Drive Puck Plate Assembly
69	91A927	Drive Pucks
70	74A66	Pressure Roller Cam
71	91A1684	Switch Actuator Assembly
72	91A1685	Actuator Arm Assembly
73	63A17	Fibre Washer
74	75A289	Drive Puck Spacer (2 Reg.)
75	91A1244	Drive Puck Plate Assembly
76	71E569	Rear Panel
77	78A22	Rear Bearing Retainer
78	63A8	Oil Retainer Washer
79	74A21	Capstan Bearing Rear
80	71A482	Motor Mounting Plate
81	75A323	Shock Mount Spacer
82	86A63	Shock Mount
83	63A188	Retainer Washer
84	35C-54	Drive Motor
85	75A30	Thrust Bearing Housing
86	61A18 & 62-25H720	Thrust Bearing Set Screw & Nut
87	76A89	Switch Actuator Shaft
88	91A1712	Actuator Arm Switch Assembly
89	71B564	Switch Actuator Slide
90	75A388	Spring Stop
91	77A68	Record Switch Return Spring
92	75A400	Spring Seat
93	75A282	Spacer
93A	91A918	Bumper
94	91C892	Rewind Motor
95	75A283	Pawl Plate Spacer
96	72B169	Pawl Bracket Plate
97	91A729	Pawl Assembly Plate
98		Supplied With Rewind Motor
99	91A43	Rewind Hub
100	63A9	Felt Washer
101	74A70	Ratchet Bearing
102	75A86	Ratchet
103	77A2	Rewind Spring
104	63A9	Felt Washer
105	63A10	Brass Washer
106	63A11	Sponge Washer
107	91A70-10	Lock Nut
108	72B229	Switch Mounting Bracket
109	78A201	Cooling Fan
110	75A16	Capstan, 3 3/4 IPS (Not Shown)
111	91A14	Pressure Roller, 3 3/4 IPS (Not Shown)
112		Fast Forward Actuating Switch
113		Rewind Switch

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



TRADE NAME	Motorola Model BKA6T (For 1956 Buick Automobiles)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Ill.
TYPE SET	Battery Operated Custom Built AM Automobile Receiver
TUBES (Five)	Types 12AC6 RF Amplifier, 12AD6 Converter, 12AC6 IF Amplifier, 12F8 Det-AVC-AF Amp., 12K5 Driver Plus Transistorized Output
POWER SUPPLY	12 Volt Storage Battery — RATING 1.75 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC -1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Set "Tone" control to high.
Remove escutcheon, dial background plate and pilot light socket to expose tuning cores.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	455KC (400% Mod)	High frequency end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru dummy to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	The following steps are not necessary except in case of tampering or replacement of tuning cores or components.						
3.	Fig. 1	Thru dummy to antenna receptacle.	1610KC	High frequency end stop.	Across voice coil.	A5, A6, A7	Back A8, A9, A10 (tuning cores) out of coils but not out of coil forms. Adjust A5, A6 and A7 for maximum output.
4.	"	"	1200KC	Adjust carriage 9/32" from high frequency end stop.	"	A8, A9, A10	Adjust for maximum output.
5.	"	"	1610KC	High frequency end stop.	"	A5, A6, A7	Retouch for maximum output.
	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum volume.						

PUSHBUTTON ADJUSTMENT

Pull pushbutton out. Tune manually to desired station. Press pushbutton in firmly. Repeat on remaining pushbuttons.

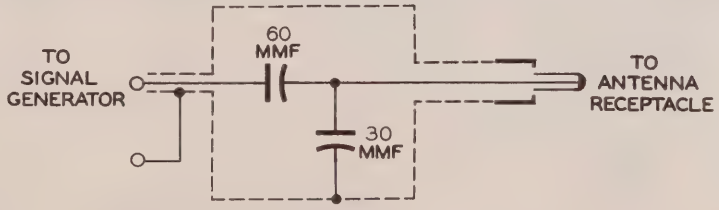


FIG. 1

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

MOTOROLA MODEL BKA6T

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12AC6	
V2	Converter	12AD6	
V3	IF Amplifier	12AC6	
V4	Det-AVC-AF Amp.	12F8	
V5	Driver	12K5	

TRANSISTORS

ITEM No.	USE	TYPE	NOTES
X1	Output	2N176	Note 1

Note 1: Type 2N178 may be used in some versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲100	16	23B536733	AFH2-02-10					R2294*
B	■500	16							
C2	200	3	23A537548	PRS6V250	BBR250-6		TD-250-6	MTH-0625	TVA-1102

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

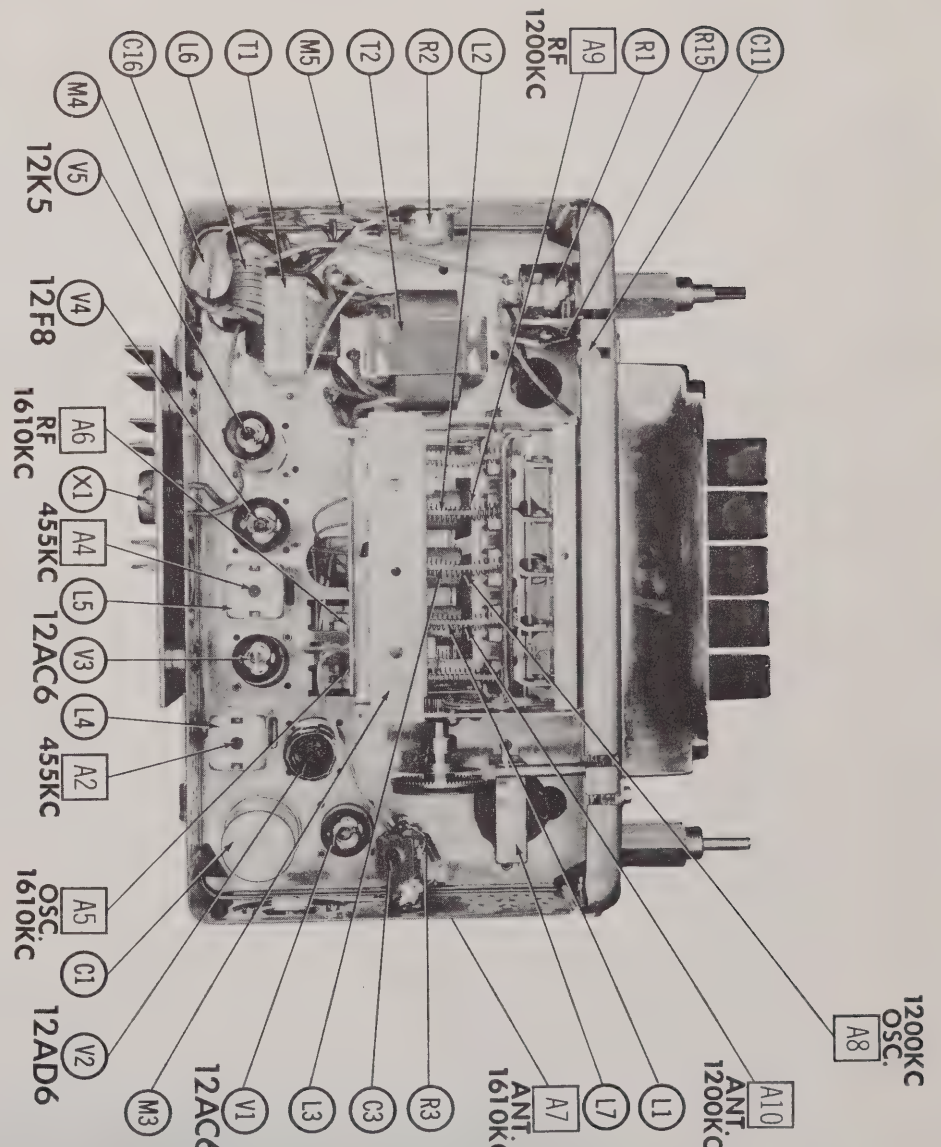
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	90		21A591682							
C4	22		21R120552	NP0-SI22	TCZ-22	TZ14	NP0K-220		5TCC-Q22	
C5	.05	200	8R121005	BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C6	400		21A71872							
C7	.05	200	8R121005	BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C8	27		21R120567	NP0-SI25	TCZ-27	TZ16	NP0L-270	ZT-5425	5TCC-Q25	
C9	.01	200	8R121868	BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C10	.01	200	8R121868	BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C11	.01	200	8R121868	BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C12	.002	600	8R121568	BPD-002	D6-202	CUB6D2		PT622	6TM-D2	
C13	.05	200	8R121005	BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C14	.1	200	8R121573	P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C15	.05	200	8R121005	BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C16	.5	100	8K122076	VHC36		ST2P5		RF480	68P20	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	18B536819	F1-52		■QJ-1029A	UF16A	Tone (Panel)
B	1Meg	½		R2-56			UR16-T35	Volume, Tap② 500K (Rear)
C	Switch			KB-4			US-26	Attach to R1B
R2	500Ω	2	18K537172				FL-600S	Emitter Bias, 200Ω Stop (Wire-wound)

■ Concentrikit Equivalent: Kit K-4, Base Elements and Shafts, B11-139 & P13-113 (Panel) B13-133X & R1-126 (Rear) 76-1 Switch

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R3	1.5Meg		6R3966	BTS-1.5Meg	
R4	1500Ω		6R6038	BTS-1500	
R5	180K		6R6444	BTS-180K	
R6	82K		6R5644	BTS-82K	
R7	47K		6R6056	BTS-47K	
R8	560Ω		6R6291	BTS-560	
R9	4.7Meg		6R6446	BTS-4.7Meg	
R10	2.2Meg		6R6433	BTS-2.2Meg	
R11	3.3Meg		6R2118	BTS-3.3Meg	
R12	91Meg		6K538716		
R13	4.7Meg		6R6446	BTS-4.7Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R14	5.6Meg		6R3988	BTS-5.6Meg	
R15	100K		6R6075	BTS-100K	
R16	3.3Meg		6R2118	BTS-3.3Meg	
R17	120K		6R5631	BTS-120K	
R18	10K		6R6320	BTS-10K	
R19	220K		6R6407	BTS-220K	
R20	56Ω		6R5614	BTS-56	
R21	2.2Meg		6R3927	BTS-2.2Meg	
R22	10Ω		6R5621	BTS-10	
R23	27Ω		6R5683	BTS-27	
R24	82Ω		6R2035	BTS-82	

TRANSFORMER (DRIVER)

ITEM No.	RESISTANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	83Ω	1.3Ω	25B536759-C						
	Turns Ratio								
	$8\frac{1}{2}$: 1								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	38.5Ω	3-4Ω	25C536761						

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6" X 9"	PM	3-4Ω	50K537864	69A2	238S1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	13Ω		24K533629				Core part #76K533627
L2	RF Coil	13Ω		24K533629				Core part #76K533627
L3	Osc. Coil	.9Ω	3.2Ω	24K533628				Core part #76K533630.
L4	Input IF	17Ω	17Ω	24C485553	16-6758	BC-352	12-C1	
L5	Output IF	17Ω	17Ω	24K485554	16-6770	BC-355	12-C6	
L6	Fil. Choke	0Ω		24K537099				1.2 Microhenries

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L7	.600A	.58Ω	12.6MH	25B536760-A					

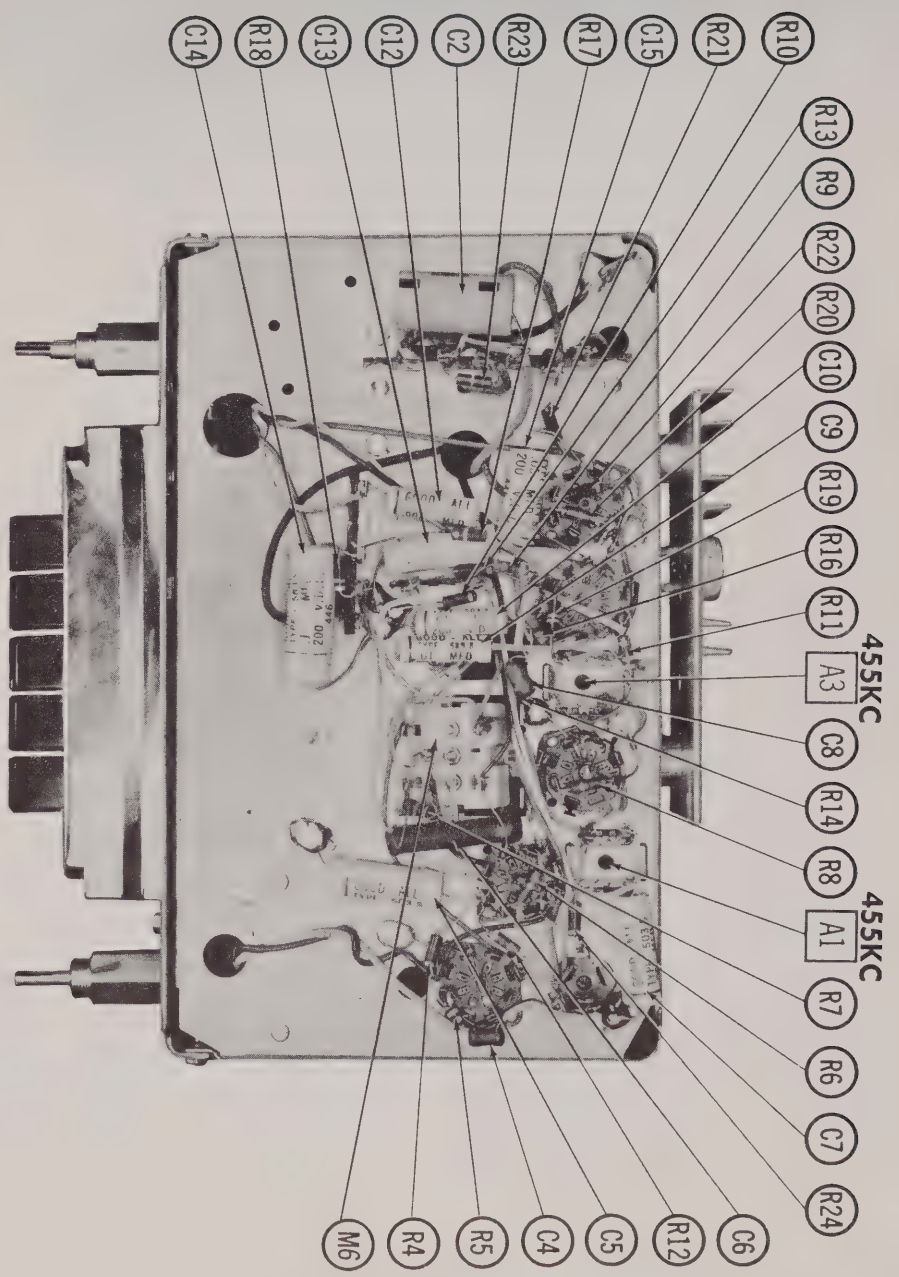
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	1AG	5A	65R122345	1V539148	301005. (1AG-5A)	155004	AGA 5	HRF

MISCELLANEOUS

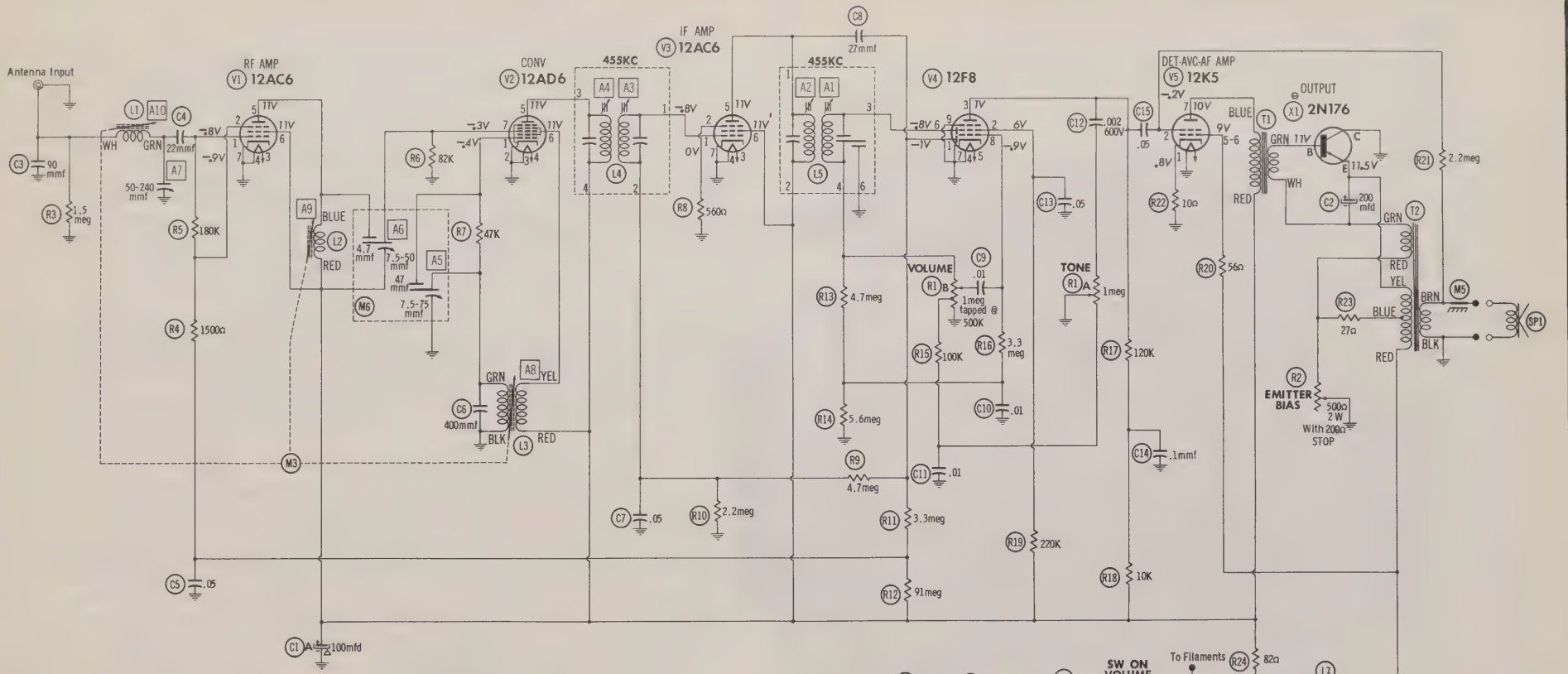
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Dial Light	65T533621	#1891
M3	Tuner	77K537733	AT-179 (Permeability), Complete. Includes L1, L2 & L3.
M4	Spark Plate	64K530177	12.6V Input Lead
M5	Spark Plate	64K530177	Speaker
M6	Trimmer Cap.	20B536839	Dual Trimmer: Osc. (A5) 7.5-50MMF and RF (A6) 7.5-75MMF. Unit also includes 4.7MMF and 47MMF. Fixed Capacities.
A7	Trimmer Cap.	20K538742	Ant. (50-240MMF)

CHASSIS—BOTTOM VIEW



SET 345 FOLDER 8

MOTOROLA MODEL BK46T



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AC6	10Meg	10Meg	.1Ω	0Ω	†100Ω	†86Ω	0Ω		
V2	12AD6	47K	0Ω	0Ω	.1Ω	†105Ω	†86Ω	82K		
V3	12AC6	2.2Meg	5600Ω	.1Ω	0Ω	†105Ω	†86Ω	0Ω		
V4	12F8	6.5Meg	†220K	†130K	0Ω	.1Ω	7Meg	0Ω	6.8Meg	0Ω
V5	12K5	10Ω	2.2Meg	.1Ω	0Ω	†56Ω	†56Ω	†150Ω		
		BASE	EMITTER	COLLECTOR						
X1	2N176	†2Ω †35Ω	†2Ω	0Ω						

† MEASURED FROM JUNCTION OF R24 AND L7.
DUAL READINGS INDICATE REVISAL OF METER LEADS.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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MOTOROLA MODEL 21T32MGA (Ch. TS-537)

MOTOROLA MODELS Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, MGA, Y21T34B, BA, M, MA, Y24K13B, M, Y24T5BG, MG, 21K35B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, MGA, 21T34B, BA, M, MA, 24K13B, M, 24T5BG, MG (Ch. TS-537, Y, TTS-537, Y, WTS-537, Y)

TRADE NAME	Motorola	MODELS	CHASSIS
		21K53BA, MA, 21K55BA, MA, 21T32BA, CHA, MGA, 21T34BA, MA	TS-537
		21K53B, M, 21K55B, M, 21T32B, CH, 21T34B, M	TTS-537
		24K13B, M, 24T5BG, MG	WTS-537
		Y21K53BA, MA, Y21K55BA, MA, Y21T32BA, CHA, MGA, Y21T34BA, MA	TS-537Y
		Y21K53B, M, Y21K55B, M, Y21T32B, CH, Y21T34B, M	TTS-537Y
		Y24K13B, M, Y24T5BG, MG	WTS-537Y
MANUFACTURER	Motorola, Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Television Receiver		
TUBES	Seventeen		
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING 1.44 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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DISASSEMBLY INSTRUCTIONS

CABINET REMOVAL

1. Remove 1 metal screw above AC interlock. Pry off rear cover.
2. Unplug 2 speaker plugs.
3. Remove 2 metal screws holding rear mounting bracket.
4. Remove safety glass is outlined under "Safety Glass Cleaning".
5. Remove 2 chassis bolts from beneath safety glass retainer.
6. Remove 6 cabinet bolts from bottom of cabinet.
7. Remove cabinet.
8. Remove 4 speaker nuts. Remove speaker.

MODEL	CHASSIS
21T32MGA	TS-537

MOTOROLA MODELS Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, MGA, Y21T34B, BA, M, MA, Y24K13B, M, Y24T5BG, MG, 21K35B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, MGA, 21T34B, BA, M, MA, 24K13B, M, 24T5BG, MG (Ch. TS-537, Y, TTS-537, Y, WTS-537, Y)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

TUNER SERVICE

The VHF section of the tuner may be serviced by removing 1 screw and 2 springs, removing the shaft and uplugging the wafer sections. This will provide access to the parts for replacement .

PICTURE TUBE SAFETY GLASS CLEANING

Remove "snap on" name plate. Remove 2 metal screws. Remove safety glass retainer. Use extreme caution in removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 11.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator may be made from the rear panel of the chassis. Set the horizontal hold control to its mid-range position and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

FUSES

A 7.5Ω fusible resistor (R113) is used for LV power supply protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

ANTI-PIN CUSHION CORRECTION

Reduce picture width until sides of raster are visible. Position magnets (M10 and M11) until sides are straight. Readjust width to fill screen.

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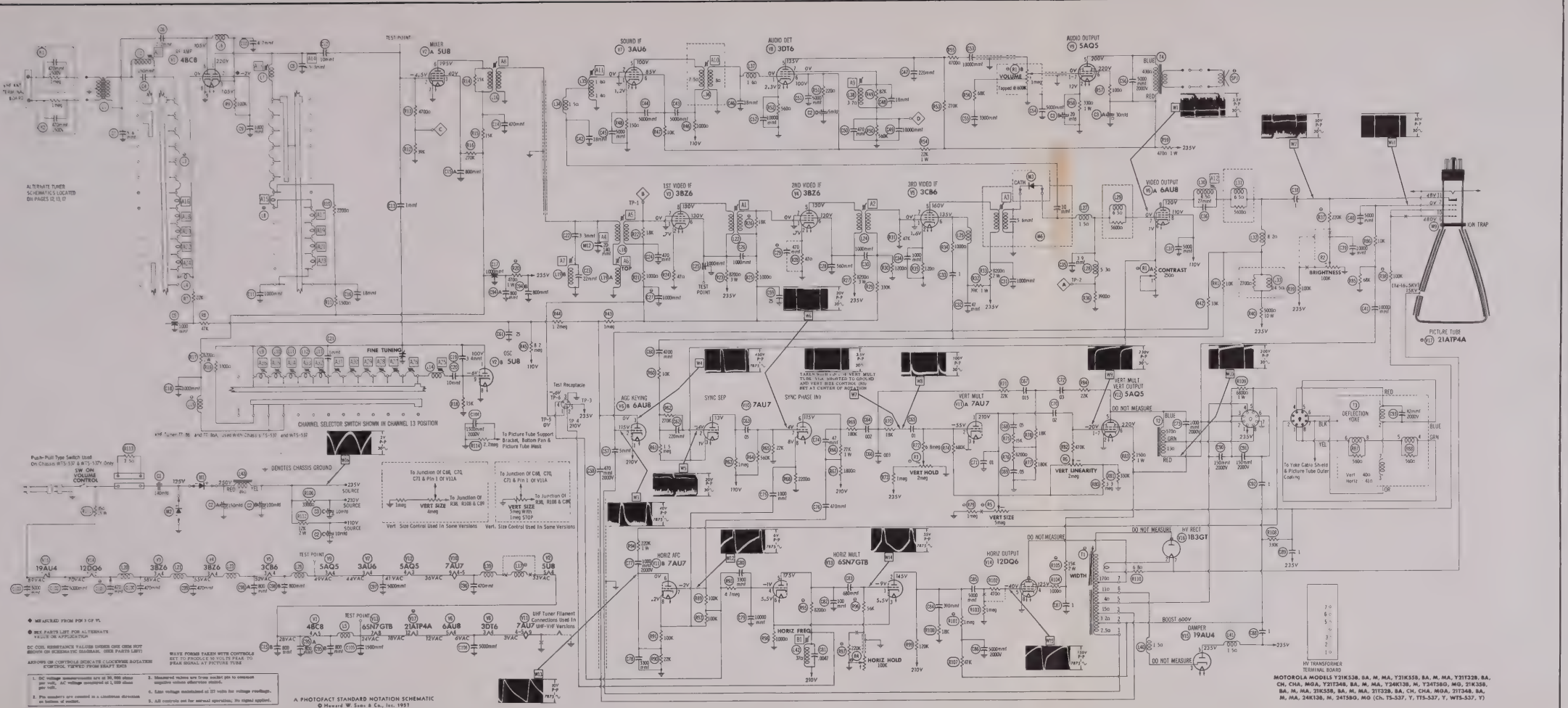
MOTOROLA MODELS Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, MGA, Y21T34B, BA, M, MA, Y24K13B, M, Y24T58G, MG, 21K53B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, MGA, 21T34B, BA, M, MA, 24K13B, M, 24T58G, MG (Ch. T5-537, Y, T15-537, Y, WT5-537, Y)
ALTERNATE TUNER SCHEMATICS LOCATED ON PAGES 12, 13, 17
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
DENOTES CHASSIS GROUND
Push-Pull Type Switch Used On Chassis WT5-537 & WT5-537Y Only
SW ON VOLUME CONTROL
To Picture Tube Support Bracket, Bottom Pin & Picture Tube Mask
To Take Cable Shield & Picture Tube Outer Coating
To Junction Of C68, C70, C71 & Pin 1 Of V11A
To Junction Of R36, R108 & C89
VERT SIZE 6meg
VERT SIZE 1meg With 1meg STOP
Vert Size Control Used In Some Versions
Vert. Size Control Used In Some Versions
TEST POINT
MIXER V2A 5U8
SOUND IF V7 3AU6
AUDIO DET V8 3DT6
AUDIO OUTPUT V9 5AQ5
VOLUME
1ST VIDEO IF V3 3BZ6
2ND VIDEO IF V4 3BZ6
3RD VIDEO IF V5 3CB6
VIDEO OUTPUT V6A 6AU8
CONTRAST
BRIGHTNESS
ION TRAP
PICTURE TUBE V17 21ATP4A
RF AMP V1 4BC8
FINE TUNING
OSC V2B 5U8
AGC KEYING V6B 6AU8
SYNC SEP V10 7AU7
SYNC PHASE INV
VERT MULT V11A 7AU7
VERT MULT VERT OUTPUT V12 5AQ5
DO NOT MEASURE
VERT HOLD
VERT LINEARITY
VERT SIZE
DEFLECTION YOKE
HORIZ AFC V11B 7AU7
HORIZ MULT V13 6SN7GTB
HORIZ OUTPUT V14 12DQ6
HV RECT V16 1B3GT
WIDTH
HORIZ FREQ
HORIZ HOLD 100K
BOOST 600V
DAMPER V15 19AU4
HV TRANSFORMER TERMINAL BOARD
19AU4 V1
12DQ6 V2
3BZ6 V3
3BZ6 V4
3CB6 V5
5AQ5 V6
3AU6 V7
5AQ5 V12
7AU7 V10
5U8 V2
4BC8 V1
6SN7GTB V13
21ATP4A V17
6AU8 V6
3DT6 V8
7AU7 UHF-VHF Versions
UHF Tuner Filament Connections Used In
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
SEE PARTS LIST FOR ALTERNATE VALUES OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. (SEE PARTS LIST)
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM KNOB END)
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction at bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, No signal applied.
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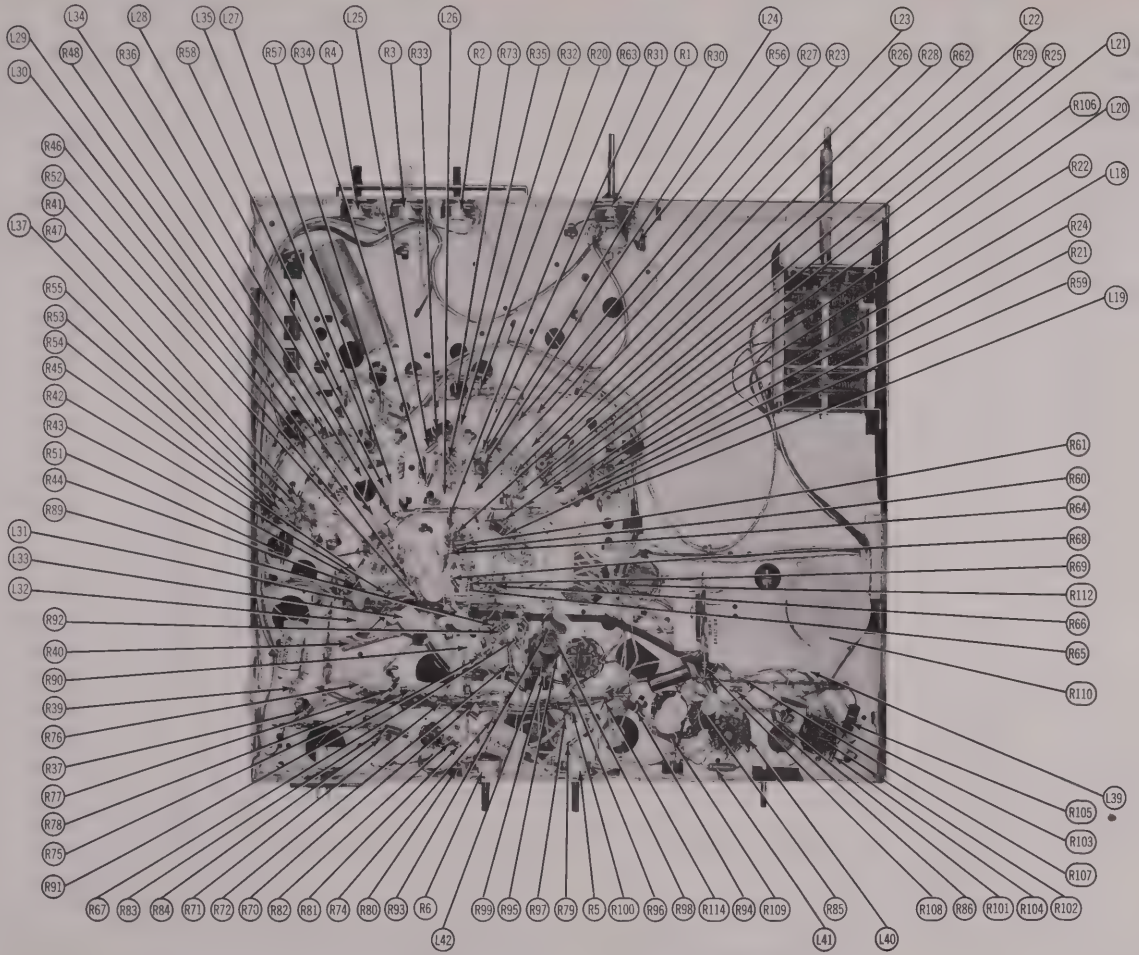

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

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F. BLANKENSHIP
3924 MIAMI ST.
DENVER, COLORADO

CHASSIS TOP VIEW

SET 345 FOLDER 9

MOTOROLA MODELS Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, MGA, Y21T34B, BA, M, MA, Y24K13B, M, Y24T5BG, MG, 21K35B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, MGA, 21T34B, BA, M, MA, 24K13B, M, 24T5BG, MG (Ch. TS-537, Y, TTS-537, Y, WTS-537, Y)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the yoke plug and connecting an 1800Ω (40 watt) resistor from TP-3 of the service test receptacle to ground.

VIDEO IF ALIGNMENT

Connect the negative lead of 6 volt bias supply to TP-5 of the service test receptacle. Connect the positive lead to chassis.
Disable the tuner oscillator by connecting a wire from pin 9 (grid) of the oscillator (V2B) to chassis and turning the channel selector to channel 13
Set the contrast control fully counter clockwise. If transmitted signals interfere with alignment disconnect the receivers antenna and connect a short across the antenna terminals
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.00MMFD	High side to point Ⓓ. Low side to chassis	44MC (10MC Swp)	42.75MC	13	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A9	Preset A8 by turning into the tuner a few turns so that it is out of the IF response curve bandpass. Be careful not to turn the slug too far or it will fall into the tuner. Adjust A1 to place 42.75MC marker in proper position on response curve as in Fig. 1. Correct position of adjustment is with core farthest from chassis end of coil.
2.	"	"	"	45.75MC	"	"	A8, A3	Adjust A3 to place 45.75MC marker on response curve as in Fig. 1. Correct adjustment of A3 is with core farthest from chassis end of coil. Adjust A8 to position center portion of curve for MINIMUM tilt and dip. Correct adjustment of A3 is with core nearest chassis end of coil.
3.	"	High side to point Ⓒ. Low side to chassis.	"	41.4MC 42.75MC 45.75MC	"	"	A4, A5, A6, A7	Adjust A4, A5 and A6 to place markers (42.75MC and 45.75MC) as shown in Fig. 2. Increase generator output to observe trap notch. Adjust A7 to place 41.4MC marker in trap notch as in Fig. 2.
4.	"	"	"	"	"	"	A8	Adjust A8 for response curve similar to Fig. 2 with correct marker positions.

SOUND IF ALIGNMENT (For Strong Signal Areas)

1. Connect the negative lead of the VTVM to point Ⓓ. Connect the positive lead to chassis.
2. Connect the antenna and hook in a TV station.
3. Set the contrast control fully clockwise.
4. Set the volume control to normal.
5. Adjust A9 for maximum meter deflection There are two points of tuning A9 Use the point with the higher reading.
6. Reduce the signal at the antenna (using an attenuator) until the picture has been weakened considerably.
7. Adjust A10 and A11 for best signal to noise ratio by listening to the sound. If the signal is too strong, exact tuning will be difficult. The proper adjustment of A10 is with core nearest chassis. The proper adjustment for A11 is with the core farthest from chassis. Readjust A10 for best signal to noise ratio

SOUND IF ALIGNMENT (For Weak Signal Areas)

1. Connect the negative lead of a VTVM to point Ⓓ Connect positive lead to chassis.
2. Using the maximum available signal, roughly align A9, A10 and A11 for maximum meter deflection. There are two points of tuning for A9. Use the one with the highest reading.
3. Readjust A9 for MINIMUM sound distortion.
4. Using the weakest signal possible, adjust A10 for best signal to noise ratio.
5. Using a weak signal, adjust A11 for best signal to noise ratio.
6. Repeat steps 1 thru 5 several times for optimum results.

4.5MC TRAP ADJUSTMENT

Tune in a TV station and advance contrast control Adjust fine tuning until 4.5MC beat (graininess) appears in picture.
Adjust A13 for MINIMUM beat pattern in picture. If two points of minimum appear, use the position with the slug farthest out of the coil.

VHF RF AND MIXER ALIGNMENT FOR TUNER TT86, TT86A AND TT86Y

Connect a clip lead from the tuner AGC line to chassis.
Remove the tuner cover. Set the scope gain so that the scope provides a two to three inch deflection with an input of 7 to 1 volt .
If a separate marker generator is used, loosely couple to the antenna input receptacle. Preset A37 by clockwise rotation until the effect is out of the tuners bandpass on channel 2. Preset A14 half-way between its limits of rotation. Preset A13 so that the sing is one-half out of the coil.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A13	Adjust for maximum amplitude and marker positions as shown in Fig. 4.
6.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A14	Adjust for maximum amplitude and marker positions as shown in Fig. 4. Repeat steps 5 and 6 to obtain best results.
7.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A15, A16	Adjust A15 for proper marker positions. Adjust A16 for maximum gain and proper tilt. (See Fig. 8.)
8.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"	A17, A18	Adjust A17 for proper marker positions as in Fig. 5. Adjust A18 for maximum gain and proper tilt.
9.	"	"	69MC (10MC Swp)	67.25MC 71.75MC	4	"	A19, A20	Adjust A19 for proper marker positions as in Fig. 5. Adjust A20 for maximum gain and proper tilt.
10.	"	"	63MC (10MC Swp)	61.25MC 65.75MC	3	"	A21, A22	Adjust A21 for proper marker positions as in Fig. 5. Adjust A22 for maximum gain and proper tilt.
11.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A23, A24	Adjust A23 for proper marker positions as in Fig. 5. Adjust A24 for maximum gain and proper tilt.

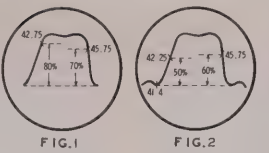

FIG. 1

FIG. 2

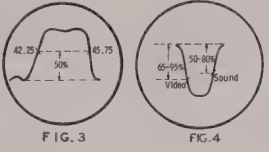

FIG. 3

FIG. 4

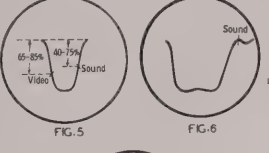

FIG. 5

FIG. 6

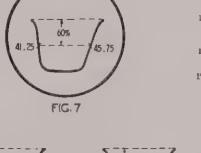

FIG. 7

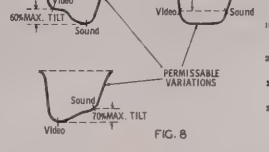

FIG. 8

FIG. 9

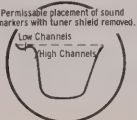

FIG. 10

VHF OSCILLATOR ALIGNMENT FOR TUNERS TT86, TT86A AND TT86Y

Replace the tuner cover. Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	215.75MC	13	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A35	Adjust to place sound marker in trap notch as in Fig. 4.
			207MC (10MC Swp)	209.75MC	12		A36	
			201MC (10MC Swp)	203.75MC	11		A37	
			195MC (10MC Swp)	197.75MC	10		A38	
			189MC (10MC Swp)	191.75MC	9		A39	
			183MC (10MC Swp)	185.75MC	8		A30	
			177MC (10MC Swp)	179.75MC	7		A31	
			85MC (10MC Swp)	87.75MC	6		A32	
			79MC (10MC Swp)	81.75MC	5		A33	
			69MC (10MC Swp)	71.75MC	4		A34	
			63MC (10MC Swp)	65.75MC	3		A35	
			57MC (10MC Swp)	59.75MC	2		A36	

IF TRAP ADJUSTMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	44MC (10MC Swp)	44MC	2	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A37	Adjust for MINIMUM amplitude at 44MC marker.

UHF IF ALIGNMENT

Unplug the UHF tuner output cable from the VHF tuner.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead.	44MC (10MC Swp)	41.25MC 45.75MC	UHF	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A38, A39	Adjust A38 for proper marker positions as in Fig. 7. Adjust A39 for maximum gain and proper tilt.

VHF RF AND MIXER ALIGNMENT FOR TUNERS TT71 AND TT78

Adjust scope gain to produce 2 inch deflection with an input voltage of .75 volts
Connect a clip lead from the ungrounded side of C81 to chassis. This grounds the AGC line. If the sweep generator has no built-in marker, loosely couple a separate marker generator to the antenna terminals.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 130Ω Carbon Resistors	Across VHF antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A40, A41	Adjust A40 and A41 for maximum amplitude and response similar to Fig. 8.
16.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A42	Adjust for maximum amplitude, correct tilt and correct marker position as in Fig. 8.
17.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check response curve on each channel. If response is not within limits on each channel, repeat steps 15 and 16. If necessary, make compromise adjustments of A40 and A41.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
18.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A43, A44	Adjust A43 and A44 for maximum gain, proper tilt and markers in proper marker positions as in Fig. 9.
19.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"	A45, A46	Adjust A45 and A46 in that order for maximum gain, proper tilt and correct marker positions as in Fig. 9.
20.	"	"	69MC (10MC Swp)	67.25MC 71.75MC	4	"	A47, A48	Adjust for maximum gain, proper tilt and correct marker positions as in Fig. 9.
21.	"	"	63MC (10MC Swp)	61.25MC 65.75MC	3	"	A49, A50	"
22.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	A51, A52	Adjust for maximum gain, proper tilt and correct marker positions as in Fig. 9. Remove clip lead from AGC line.

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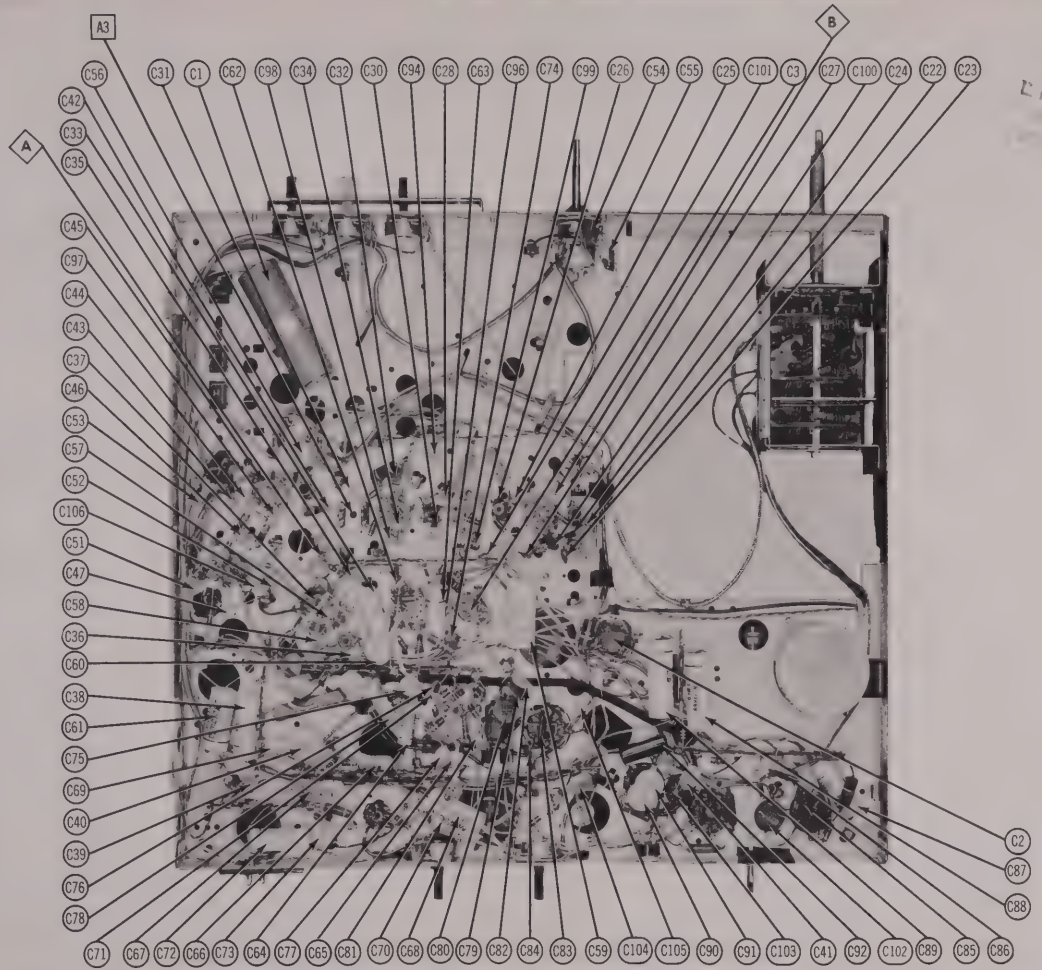
MOTOROLA MODELS Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T33B, BA, CH, CHA, MGA, Y21T34B, BA, M, MA, Y24K13B, M, Y24T58G, MG, 21K35B, BA, M, MA, 21K55B, BA, M, MA, 21T33B, BA, CH, CHA, MGA, 21T34B, BA, M, MA, 24K13B, M, 24T58G, MG (Ch. T5-537, Y, VT5-537, Y, WT5-537, Y)

ALIGNMENT INSTRUCTIONS (cont)

VHF OSCILLATOR ALIGNMENT FOR TUNERS TT77 AND TT78

Connect the bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.
Use only enough sweep generator output to provide usable pattern on scope.

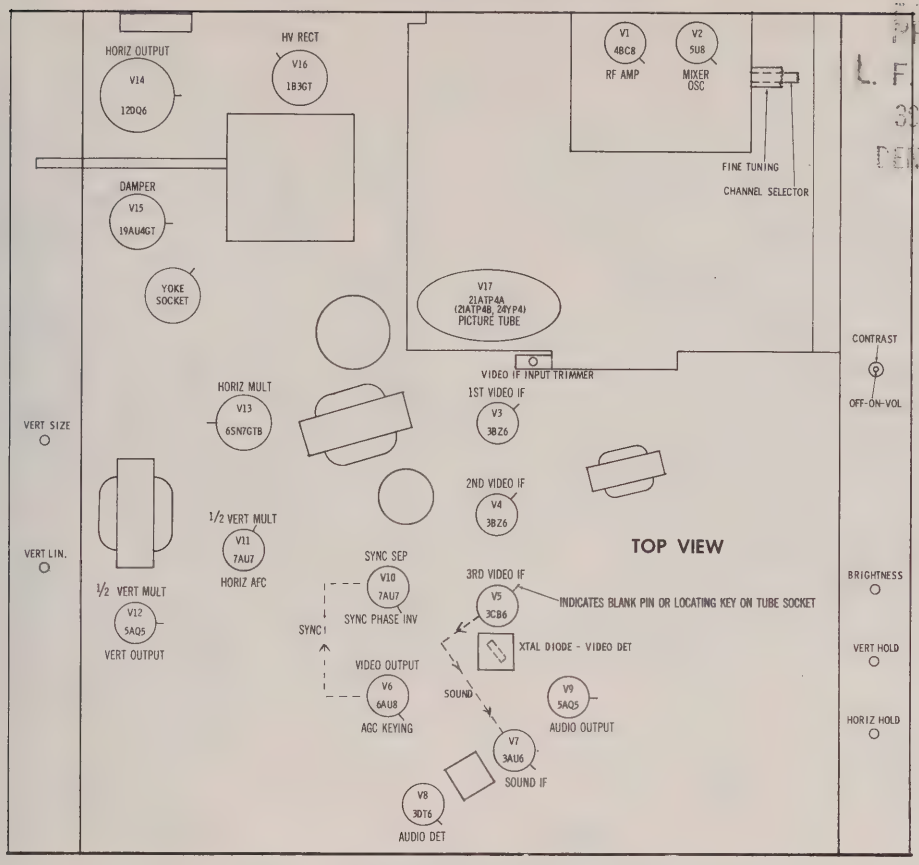
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
23.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	197.75MC	10	Vert. Amp. thru 47K to point Ⓒ. Low side to chassis.	A53	Adjust to place sound marker in trap notch as in Fig. 10.
24.	"	"	213MC (10MC Swp)	215.75MC	13		A54	Check channels 7 thru 13 noting if the sound marker for each channel falls just above the trap notch. If more than 40 degrees rotation of the fine tuning is required to place the sound marker in the proper position on any high channel, set the tuner, sweep and marker generator for channel 13 frequencies and adjust A54 to place the sound marker in the proper position. Then repeat step 23.
			207MC (10MC Swp)	209.75MC	12			
			201MC (10MC Swp)	203.75MC	11			
			195MC (10MC Swp)	197.75MC	10			
			189MC (10MC Swp)	191.75MC	9			
			183MC (10MC Swp)	185.75MC	8			
			177MC (10MC Swp)	179.75MC	7			
25.	"	"	85MC (10MC Swp)	87.75MC	6	"	A55	Adjust to place sound marker in trap notch as in Fig. 10. A55 thru A59 are adjusted by compressing and expanding coil turns.
			79MC (10MC Swp)	81.75MC	5		A56	
			69MC (10MC Swp)	71.75MC	4		A57	
			63MC (10MC Swp)	65.75MC	3		A58	
			57MC (10MC Swp)	59.75MC	2		A59	



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

PROPERTY OF

TUBE PLACEMENT CHART



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3014 MEADE ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

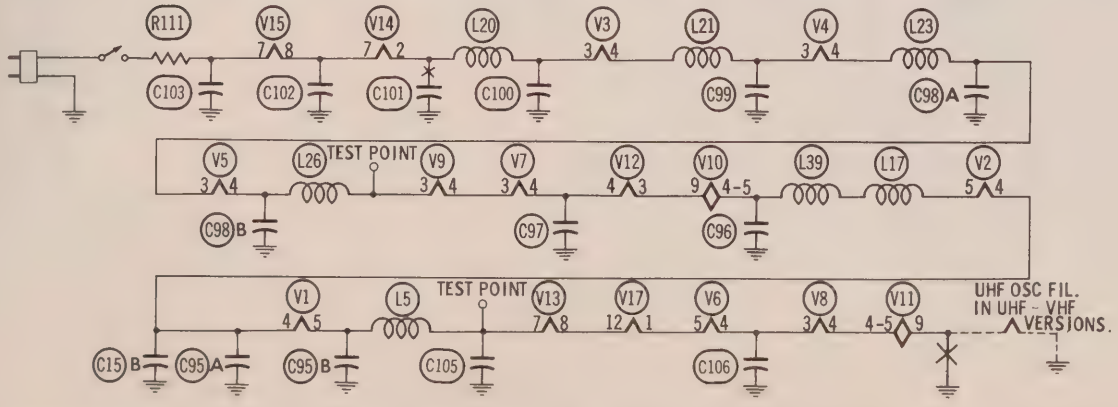
POWER SUPPLY FAILURE
No raster, no sound - Fusible Resistor (R113), Rectifier (M1), (M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, V5, Diode (M3), V6, V17
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V17
Has pic, no sound - V7, V8, V9
Overloaded picture - V6

SYNC FAILURE
No vert. sync - V11, V12
No horiz. sync - V11, V13
No vert. or horiz. sync - V10

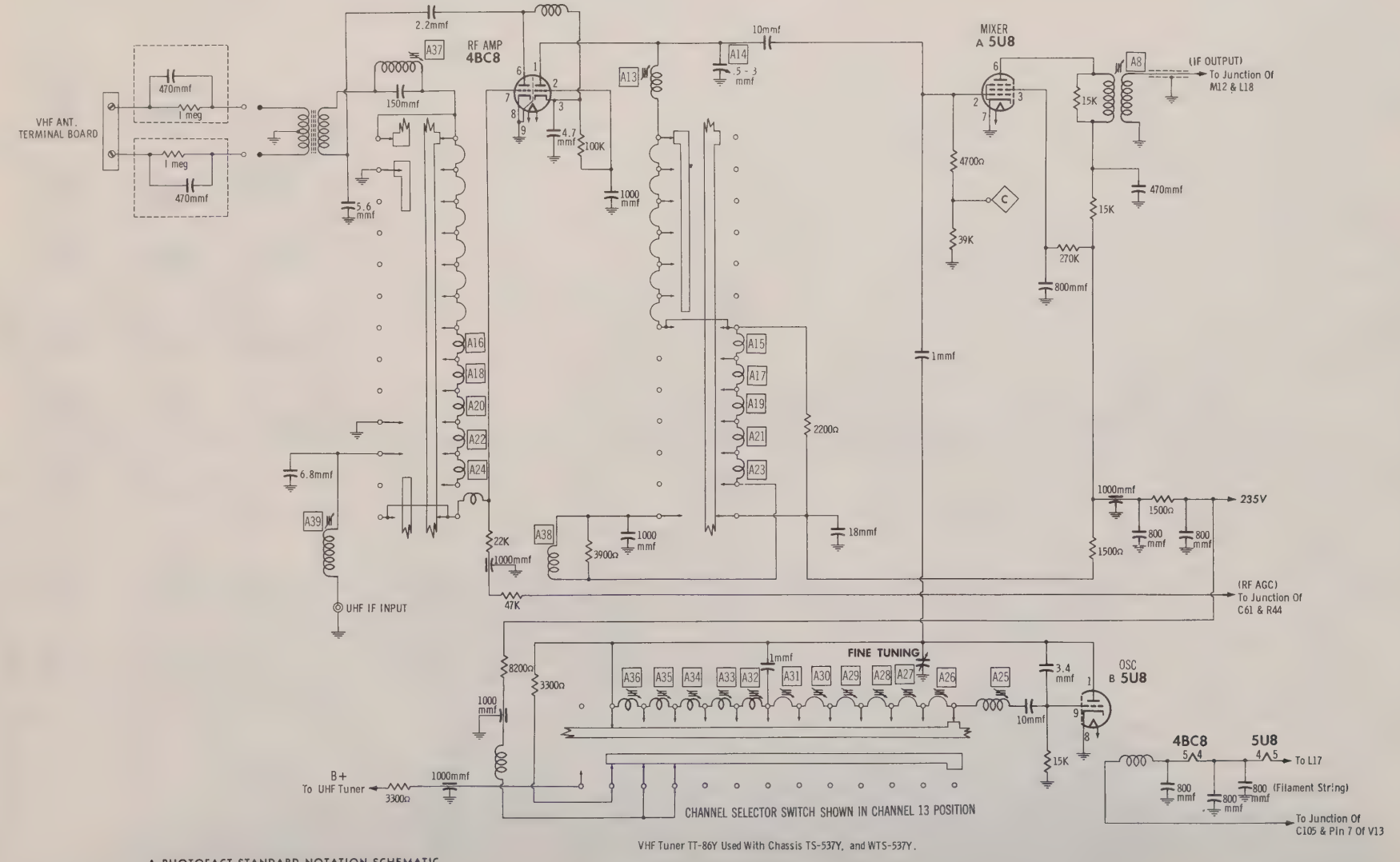
SWEEP FAILURE
No raster, has sound - V11, V13, V14, V15, V16, V17
No vertical deflection - V11, V12
Poor vert. linearity or foldover - V11, V12
Poor horiz. linearity or foldover - V11, V13, V14, V15
Narrow picture - V11, V13, V14, V15, M1, M2
Vert. off freq. - V11, V12
Horiz. off freq. - V11, V13

Since this receiver employs tubes used in series, filament network, an open filament in any tube in this series will cause the set to be inoperative. (See circuit below).



SET 345 FOLDER 9

MOTOROLA MODELS Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, MGA, Y21T34B, BA, M, MA, Y24K13B, M, Y24T5BG, MG, 21K35B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, MGA, 21T34B, BA, M, MA, 24K13B, M, 24T5BG, MG (Ch. TS-537, Y, TTS-537, Y, WTS-537, Y)



VHF Tuner TT-86Y Used With Chassis TS-537Y, and WTS-537Y.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALTERNATE VHF TUNER

MOTOROLA MODELS Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, MGA, Y21T34B, BA, M, MA, Y24K13B, M, Y24T5BG, MG, 21K35B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, MGA, 21T34B, BA, M, MA, 24K13B, M, 24T5BG, MG (Ch. TS-537, Y, TTS-537, Y, WTS-537, Y)

ALTERNATE VHF TUNER

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F. BLANKENSHIP
3924 MEADE

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amp.	4BC8	
V2	Mixer-Osc	5U8	
V3	1st Video IF Amp.	3AU6	
V4	2nd Video IF Amp.	3DZ6	
V5	3rd Video IF Amp.	3DZ6	
V6	Video Output-AGC-Keying	6AL8	
V7	Sound IF Amp.	2AL6	
V8	Audio Detector	6DT6	
V9	Audio Output	5AQ5	
V10	Sync Sep.-Sync Phase Inv.	7AL7	
V11	Horiz. AFC-Vert. Mult.	7AL7	
V12	Vert. Mult.-Vert. Output	5AQ5	
V13	Horiz. Multi.	6BN7GTB	
V14	Horiz. Output	12DQ6	
V15	Damper	1BA4	
V16	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	MOTOROLA Part No.	CBS Part No.	GENERAL ELECTRIC Part No.	SYLVANIA Part No.	
V17	21AT94A		21AT94A/21AT94 ①	21AT94 ②	① Aluminized ② Silver Screen "85"
	21AT94B	21AT94	21AT94A, 21AT94 ①	21AT94A	
	24YP4	21AT94	21AT94 ①	21AT94 ②	
		24YP4 ①	24YP4 ②		

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	RATING VOLT	Part No	REPLACEMENT DATA AEROVOX Part No.	CORNELL-DUBILIER Part No.	MALLORY Part No	PYRAMID Part No	SANGAMO Part No	SPRAGUE Part No.	NOTES
C1	140	150	23B73750	PRI-100	BRU1501S	TC495	TD-150-150	MT-15150	TVA-1422	
C2A	±150	300	23B75748	AFB84-08-TR		FP333, 3 W5427			R1343*	
B	±100	350								
C	±10	300								
D	5	350								
C3A	±30	300	23B73750	AFB3-108	CO810	FP350, 7	TMT-93	T-475	TVL-3635, 5	
B	30	25								
C	±10	300								

* Non catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING CAP	RATING VOLT	MOTOROLA Part No.	REPLACEMENT DATA AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C4	150		21MA9208			M046	TCT-150		STCU-T15	
C5	1000		21MA7989C	EF-001		MFT-1000			503C-D1	
C6	5, 2		21MA1948	MPO-S1, 2	DS-030	TP05	TCC-5, 2		STCCB-V22	
C7	5, 5		21MA7978	MPO-D1	DS-050	G011		ST-555		
C8	5-3		21KT3985		S39-3		S139-D	CT565A		
C9	1000		21MA1598	BPD-001	DD-102	K069	RD-1000	DC531	58K-D1	
C10	4, 7		21MA1594	MPO-S1, 7	TCZ-4R7	G011	TCC-4, 7	ST-5547	STCCB-V47	
C11	1000		21MA1598	BPD-001	DD-102	K069	RD-1000	DC531	58K-D1	
C12	10		21MA1575	MPO-D1 10	DD-100	G018	RD-10	ST-541	STCC-Q1	
C13	1		21MA1407							
C14	470		21MA1554	BPD-00047	DD-471	K069	RD-470	UC-5347	5GA-T47	
C15A	800		21KR00943	SI 250						
B	800									
C16	18		21KR0576							
C17	1000		21MA7989C	EF-001	MFT-1000				503C-D1	
C18	1000		21MA1598	BPD-001	DD-102	K069	RD-1000	DC531	58K-D1	
C19	3, 4		21MA1949							
C20	10		21MA1577	BPD-00003D	DD-100	G018	SD-10	UC-541	5GA-Q1	
C21	1		21MA1553	MPO-S1	TCZ-1	T203	TCC-1	ET-5575	STCCB-V1	
C22	3, 3		21MA1594	MPO-S1, 3	TCZ-3R3	TP05	TCC-3, 3	ST-5533	STCCB-V33	
C23	23		21MA1898							
C24	470		21MA1554	BPD-00047	DD-471	K069	RD-470	UC-5347	5GA-T47	
C25	470		21MA7989C	EF-001	MFT-1000				503C-D1	
C26	1000		21MA1598	BPD-001	DD-102	K069	RD-1000	DC531	58K-D1	
C27	1000		21MA1554	BPD-001	DD-102	K069	RD-1000	DC531	58K-D1	Note 3
C28	580		21MA1930S	DI-580	DD-581	G083	RD-580	UC-5386	5GA-T56	
C29	470		21MA1554		DD-471	K069	RD-470	UC-5347	5GA-T47	Note 1
C30	1000		21MA1598	BPD-001	DD-102	K069	RD-1000	DC531	58K-D1	
C31	1000		21MA1598	BPD-001	DD-102	K069	RD-1000	DC531	58K-D1	
C32	47		21MA1593							
C33	.1	600	21MA1573	P583H-1	DF-104	CU83W1		GE1M-501	83M-P1	
C34	1000		21MA1598	BPD-001	DD-102	K069	RD-1000	DC531	58K-D1	
C35	5, 9		21MA1953							
C36	27		21MA1898							
C37	1000		21MA1598	BPD-005	DD-502	K080	GP-5000	DC525	58K-C5	
C38	.1	400	21KR3006	P483H-1	DF-104	ST4W1		GE1M-401	83M-P1	
C39	10000		21KR45776	BPD-01	DD-103	K062	GP-10000	DC531	58K-S1	
C40	5000		21MA1609S	BPD-005	DD-502	K080	GP-5000	DC525	58K-D5	
C41	10000		21MA1578S	BPD-01	DD-103	K062	GP-10000	DC531	58K-S1	
C42	47		21MA1957S	D1-18	DD-300	G023	SD-18	UC-5418	5GA-Q18	
C43	5000		21MA7823S	BPD-005	DD-503	K080	GP-5000	DC525	58K-D5	
C44	5000		21MA7823S	BPD-005	DD-502	K080	GP-5000	DC525	58K-D5	
C45	5000		21MA7823S	BPD-005	DD-502	K080	GP-5000	DC525	58K-D5	
C46	18		21AL0357S						5GA-Q18	
C47	330		21MA1242G	D1-330	DD-331	G01L	SD-330	UC-5323	5GA-T33	
C48	47		21MA1957S							
C49	10000		21MA1578	BPD-01	DD-103	K062	GP-10000	DC531	58K-S1	
C50	470		21MA1607S	BPD-0047	DD-471	K062	RD-470	UC-5347	5GA-T47	
C51	5000			BPD-005	DD-502	K080	GP-5000	DC525	58K-D5	
C52	10000		21MA1532	BPD-01	DD-103	K062	GP-10000	DC531	58K-S1	
C53	10000		21MA1948	BPD-01	DD-103	K062	GP-1000	DC531	58K-S1	
C54	5000		21MA7823S	BPD-005	DD-502	K080	GP-5000	DC525	58K-D5	
C55	5500		21MA1624S	D1-3300	DD-332	K077	GP-5300	UC-5333	5GA-D35	
C56	5500	3000	21A7823S			YD05			20HE-D5	
C57	5		21MA1565	MPO-S15	TCZ-5R7	Z01L	TCC-5	DC-5047	20GA-T47	
C58	470	3000	21MA1554	BPD-30-470	DD-471	YT47	RD-470	UC-5347	5GA-T47	
C59	.35	100	21KR3045	P58SN-25				CUB3P25	25TM-P25	
C60	470		21MA1554	BPD-0047	DD-472	K075	GP-4700	DC535	58K-D4	
C61	.25	400	21KR3045	P58SN-25				CUB3P5	25TM-P25	
C62	220		21KR3045	D1-330	DD-331	G01L	SD-330	UC-5333	5GA-T33	
C63	.05	600	21KR3045	BPD-05	DF-503	CUB4S5		GE1M-415	47M-S5	
C64	.002	600	21KR3156	BPD-002	D6-302	CUBD2		GE1M-632	67M-D2	
C65	.01	600	21KR3045	BPD-01	D6-103	CUB4S		GE1M-611	47M-S1	
C66	.003	600	21KR3159	BPD-003	D6-303	CUBD3		GE1M-633	67M-D3	
C67	.015	400	21KR3045	BPD-015	D6-153	CUB4S		GE1M-615	47M-S15	
C68	.05	600	21KR3045	BPD-05	DF-503	CUB4S5		GE1M-615	47M-S5	
C69	.05	200	21KR3045	BPD-05	DF-503	CUB4S5		GE1M-415	47M-S5	
C70	.02	200	21KR3079	BPD-02	D6-203	CUB4S3		GE1M-413	47M-S3	
C71	.01	600	21KR3045	BPD-01	D6-103	CUB4S1		GE1M-611	47M-S1	
C72	.03	200	21KR3045	BPD-03	DF-303	CUB4S3		GE1M-613	47M-S3	
C73	1000	3000	21KR3454	BYD-30-1000	DD30-102	YZD1	RD3-1000	DC3021	30GA-D1	

CAPACITORS (cont)

ITEM No	RATING CAP	RATING VOLT	MOTOROLA Part No.	REPLACEMENT DATA AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C74	47		21KR3223	NT50-S147	TCN-47	N033	TCT-47	MT-5447	STCU-Q33	
C75	1000		21AL1878	1484-001	DD-108	K069	RD-1000	DC531	58K-D1	
C76	470		21KR4854	1484-000947	DD-478	K060	RD-470	UC-5347	5GA-T47	
C77	1000	3000	21KR3454	BYD-30-1000	DD30-102	YZD1	RD3-1000	DC3021	30GA-D31	
C78	3300		21KR3072	D1-3300	DD-332	K077	GP-3300	UC-5333	58K-D33	
C79	10000		21KR4378	D1-10000	DD-103	K062	GP-10000	DC531	58K-S1	
C80	3300		21KR3042	D1-3300	DD-332	K077	GP-3300	UC-5333	58K-D33	
C81	.0047	400	BK7394834	BPD-0047	D6-473	CUBD47		GE1M-425	47M-D47	
C82	100		21KR4005S7	BT50-S1 400	TCN-100	W043	TCT-100	UC-581	STCU-T1	
C83	680		21KT5604S	1484-000681	D6-681	1W5T68		M8-368		
C84	240		21KT3157S		D6-241	1W5T24		M8-324		
C85	5000		21MA1531S	BPD-005	DD-502	K080	GP-5000	DC525	58KD-D5	
C86	5000	2000	21KR7329S			YD05			20HE-D5	
C87	1		21KR3000	P48SN-1	DF-104	CU84P1		GE1M-401	47M-P1	
C88	1	600	21KR3189	P58SN-1	DF-104	CU84P1		GE1M-501	47M-P1	
C89	1	600	21KR3189	P58SN-1	DF-104	CU84P1		GE1M-601	47M-P1	
C90	150	2000	21KR3284	HVD-30-1500	DD50-151	YST1	RD3-15		30GA-T15	
C91	150	3000	21KR3284	HVD-30-1500	DD50-151	YST1	RD3-15		30GA-T15	
C92	2	3000	21KR3175	P388H-1	DF-104	CU83P1		GE1M-301	37M-P1	
C93	83	2000	21KR3015G		DD30-820				30GA-S82	
C94A	800		21KR00943	SI820	DD-801	K087	ED-820	UC-5375	5GA-T8	
B	800			SI820	DD-801	K087	ED-820	UC-5375	5GA-T8	
C95A	800		21KR00943	SI820	DD-801	K087	ED-820	UC-5375	5GA-T8	
B	800			SI820	DD-801	K087	ED-820	UC-5375	5GA-T8	
C96	470		21KR4394	BPD-00047	DD-471	K060	RD-470	UC-5347	5GA-T47	
C97	5000		21KR3533	BPD-005	DD-502	K080	GP-5000	DC525	5GA-D5	
C98A	800		21KR00943	SI820	DD-801	K087	ED-820	UC-5375	5GA-T8	
B	800			SI820	DD-801	K087	ED-820	UC-5375	5GA-T8	
C99	470		21KR1455S	BPD-00047	DD-471	K060	RD-470	UC-5347	5GA-T47	
C100	470		21KR2047	BPD-00047	DD-471	K060	RD-470	UC-5347	5GA-T47	
C101	470		21KR1219T	BPD-00047	DD-471	K060	RD-470	UC-5347	5GA-T47	Note 1
C102	5000		21KR3009S	BPD-005	DD-502	K080	GP-5000	DC525	5GA-D5	
C103	5000		21KR3009S	BPD-005	DD-502	K080	GP-5000	DC525	5GA-D5	
C104	1500	2000	21KR3412I	HVD-30-1500	DD30-152	YZD15	RD3-1500	DC30215		
C105	1500		21KR3010G	BPD-0015	DD-152	K075	RD-1500	DC525	5GA-D15	
C106	5000		21KR3472S	BPD-005	DD-502	K080	GP-5000	DC525	5GA-D5	

Note 1: Not used in some versions.
Note 2: Some versions use a 470MMF in this application.

CONTROLS

ITEM No	RATING RESISTANCE	WATTS	MOTOROLA Part No.	REPLACEMENT DATA CENTRALAB	CLAROSTAT	IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
R1A	250Ω	½	18KT3983					Contrast - Note #1
B	1MEG		Not Req.					Volume Trap ① 800K
C	Shaft		Not Req.					Attach to R1B
R2A	100K	½	18KT3734T				PTA1SL	Brightness
B	Shaft		Not Req.				PTA2EL	Attach to R2A
R3A	2Meg	½	18KT3956S-P				Not Req.	Vertical Hold - Note #4
B	Shaft		Not Req.					Attach to R3A
R4A	100K	½	18KT3946					Horiz. Hold - Note #2
B	Shaft		Not Req.				PTA5SL	Attach to R4A
R5A	5Meg	½	18KT4086S3-G				Not Req.	Vertical Size - Note #3
B	Shaft		Not Req.				Not Req.	Attach to R5A
R6A	1Meg	½	18KT4086S2				PTA2EL	Vertical Lin.
B	Shaft		Not Req.					Attach to R6A

Note #1: Alternate part #18C739833-A may be used in some versions.
Note #2: Alternate part #18KT3734T-P may be used in some versions.
Note #3: Alternate part #18KT3435, 5Meg with 1Meg stop may be used in some versions.
Also, alternate part #18KT3956S4, 4Meg with no stop may be used in some versions.
Note #4: Alternate part #18KT3962S may be used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING OHMS	RATING WATT	MOTOROLA Part No.	REPLACEMENT DATA IRC Part No.	NOTES
R7	22K		6R6028	BTS-22K	
R8 ①	47K		6R6058	BTS-47K	
R9	100K		6R6078	BTS-100K	
R10	2200Ω		6R6069	BTS-2200	
R11	1500Ω		6R6061	BTS-1500	
R12	39K		6R6487	BTS-39K	
R13	4700Ω		6R6093	BTS-4700	
R14	18K		6R6048G	BTS-18K	
R15	15K		6R12455	BTS-15K	
R16	27K		6R6451	BTS-270K	
R17	8200Ω	1	6R5860	BTA-8200	
R18	15K		6R12455	BTS-15K	
R19	3300Ω		6R5681	BTS-3300	
R20	470Ω	1		BTA-470	Note 1
R21	1000Ω		6R5681		
R22	18K		6R5598		
R23	4200Ω	3	17KT3283	PW4-4200	
R24	47Ω		6R5550	BTS-47	
R25	1000Ω		6R6301		
R26	18K				Note 2
R27	6200Ω	3	17KT3283	PW4-6200	
R28	470Ω		6R5550	BTS-47	
R29	330K		6R2096		
R30	1200Ω		6R5836		
R31	47K		6R6048	BTS-47K	
R32	33K	1	6R5598	BTA-33K	
R33	6200Ω	2	6R5725	BTB-6200	
R34	1000Ω		6R6229	BTB-102	
R35	330Ω		6R5550		
R36	3900Ω		6R5859		
R37	330K		6R6607		Note 3
R38	100K			BTS-100K	Note 4
R39	100K		6R6021	BTS-100K	
R40	2000Ω	10	17KT3235	PW10-2000	
R41	10K		6R6320		
R42	33K		6R6021		
R43	1Meg		6R6048		
R44	2.2Meg 5%		6R12495		
R45	2.2Meg 5%		6R14414	BTS- 5.2Meg 5%	
R46	1000Ω		6R6301	BTS-1000	
R47	10K		6R6204	BTS-10K	
R48	15K		6R6373	BTS-15K	
R49	33K		6R6021	BTS-33K	
R50	560K		6R6607	BTS-560K	
R51	330Ω		6R3933	BTS-229	
R52	560Ω		6R5681	BTS-560	
R53	270K		6R6414	BTS-270K	
R54	22K	1	6R6541	BTA-22K	
R55	470Ω		6R6039	BTS-4700	
R56	68K		6R6001	BTS-68K	
R57	100Ω		6R6018	BTS-100	
R58	3300Ω	½	6R6254	BTA-330	
R59	470Ω	1	6R5860	BTA-470	
R60	10K		6R6320	BTS-10K	
R61	1.5Meg		6R6366	BTS- 1.5Meg	
R62	270Ω		6R6441	BTS-270K	
R63	1Meg		6X124494	BTS-1Meg	
R64	560K		6R6607	BTS-560K	
R65	22K		6R6397	BTS-22K	
R66	2.7K		6R6427	BTS-27K	
R67	1800Ω		6R3089	BTS-1800	
R68	2200Ω		6R6069	BTS-2200	
R69	180K		6R6048	BTS-180K	
R70	18K		6R6501	BTS-18K	
R71	33K		6X109035	BTS-33K	
R72	6.8Meg		6X124735	BTS- 6.8Meg	
R73	1Meg		6R6048	BTS-1Meg	
R74	680K		6R6475	BTS-680K	
R75	15K		6R6477	BTS-15K	
R76	8200Ω		6R6204	BTS-8200	
R77	180K		6R6444	BTS-180K	
R78	18K		6R12445	BTS-18K	
R79	1Meg		6R6504	BTS-1Meg	Note 5
R80	3.3Meg		6R6497	BTS- 3.3Meg	
R81	330K		6R2096	BTS-330K	
R82	470K		6R6032	BTS-470K	
R83	1500		6R6330	BTA-150	
R84	22K		6R10935	BTS-22K	
R85	68K		6R6001	BTS-68K	
R86	10K		6R6320	BTS-10K	
R87	560K		6R6291		
R88	560K		6R12445	BTS-18K	
R89	100K		6R6031		
R90	22K		6R6397		
R91	100K		6R6031		
R92	100K		6R6031		
R93	4.7Meg		6R2122		
R94	220K	1	6R12455		

RESISTORS (cont)

ITEM No	RATING OHMS	RATING WATT	MOTOROLA Part No.	REPLACEMENT DATA IRC Part No.	NOTES
R95	82000		6R2004		Note 6
R96	56K		6R6378		Note 7
R97	220K		6R6407		Note 8
R98	10000		6R6329		
R99	120K		6R6521		
R100	18K		6K122840		
R101	1Meg				Note 9
R102	47K		6R3949		
R103	1Meg		6R6048		
R104	10000		6R6329	BTS-1000	

Note 1: Some versions may use 1500Ω, 2W in this application.
Note 2: Some versions may use 10K part #6R6330 in this application.
Note 3: Some versions may use 150K in this application.
Note 4: Some versions may use 33K part #6R5021 in this application.
Note 5: Not used in some versions.
Note 6: Some versions may use 56000 in this application.
Note 7: Some versions may use 100K in this application.
Note 8: Some versions may use 2.5Meg part #6R6433 in this application.
Note 9: Some versions may use 12K, 2W in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA MOTOROLA Part No.	Halldorson Part No.	Mant Part No.	RCA TYPE No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
T1	Horiz. Output Trans.	24C7329S3 ①							
T2	Vert. Output Trans.	24ST8781S	21900 ② ③	A-3623 ② ③					
T3A	Tone(90°Sine)(24MF)	24GT3027S	EY-507 ③	MDF-92-3	225D	EY603 ③	TV-316 ③	A-8148 ③	24ST72 ③
B	Vert(60MH)	48A72145 ②							

① Complete assembly. Includes: primary coil, Motorola part no. 24B732S31.
secondary coil, Motorola part no. 24K73721S.
core, Motorola part no. 48K73512J or 48K74027.

② Connect as auto trans.
③ Use 7 to 1 turns ratio.
④ Drill new mounting hole(s).
⑤ Cut and tape green lead.
⑥ Take rear cover and centering device.
⑦ Use orig. rear cover and centering device.
⑧ Use orig. horiz. yoke damping network with capacitor C88 across terms #3 and #7.
⑨ Connect horiz. yoke term #3 to yoke plug pin #4; horiz. yoke terms #2 and #7 to yoke plug pin #5; horiz. yoke term #1 to yoke plug pin #6.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI	IMPEDANCE SEC	MOTOROLA Part No.	REPLACEMENT DATA Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T4	5.2K	3-4Ω	25B73884S ①	21900	A-3830	A-3877	24S6S1	S-8X ②	① Alternate part #25C73884S. ② Drill one new mtg. hole.

SPEAKER

ITEM No	RATINGS SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA MOTOROLA Part No.	QUAM Part No.	RCA TYPE No.	NOTES
SP1	5 1/4"	PM	3-4Ω	50K73937S ①	52A1	217S1	① Used in models 21T32BA, CHA; Y21T32BA, CHA; 21T33B, CH; Y21T33B, CH; 21T33MOA, Y21T33MOA.
	5 1/4"	PM	3-4Ω	50D73923S ②	52A1		② Used in models 21T34BA, MA; Y21T34BA, MA;
	8"	PM	3-4Ω	50K72938S ①			21T34B, M; Y21T34B, M.
	8"	PM	3-4Ω	50K74038S ③			③ Used in models 21K55BA, MA; Y21K55BA, MA;
	6"	PM	3-4Ω	50D73967S ④			21K55B, M; Y21K55B, M.
							④ Used in models 24K13B, M; Y24K13B, M.
							⑤ Used in models 24T58G, MG; Y24T58G, MG.

COILS (RF-IF)

ITEM No	USE	MOTOROLA Part No.	NOTES
L1	Ant. Trans.	24B739909	
L2	IF Trap	24B739500	
L3	Ant. Coil	24C740040	Channels 2-6 ①
L4	Ant. Coil	24K739534	Channel 13
L5	Ant. Coil	24K739381	
L6	Neut. Coil	24A739397	
L7	RF Coil	24A739381	Channel 13
L8	RF Coils	24K740465	Channels 3-6 ①
L9	Osc. Coil	24K739531	Channel 13

① Complete coil and wafer assembly. Includes L1, L2, L3, L4, L6.
② Complete coil and wafer assembly.

ITEM No	USE	MOTOROLA Part No.	NOTES
L10	Osc. Coil	24K739382	Channel 3
L11	Osc. Coil	24C739582	Channel 4
L12	Osc. Coil	24A739384	Channel 5
L13	Osc. Coil	24K739383	Channel 6
L14	Osc. Coil	24K739386	Channel 13
L15	RF Choke	24A739380	
L16	Conv. Plate	24B739079	
L17	Fil. Choke		

ITEM No	USE	REPLACEMENT DATA DC RES. PRI.	DC RES. SEC.	MOTOROLA Part No.	MERSHEN Part No.	MERIT Part No.	MILLER Part No.	NOTES
L18	1st Video IF	.1Ω	.1Ω	24B737850	17-4622			
L18A	Bandwidth Coil	0Ω		24K738132				
B	4.5MC Trap	0Ω						
L20	Fil. Choke	0Ω		24K739591	19-1001		6804	1.3 Microhenries
L21	Fil. Choke	0Ω		24K739396	19-1001		6804	1.3 Microhenries
L22	2nd Video IF	.1Ω	.1Ω	24B739387	17-4523	TV-130	6218	
L23	Fil. Choke	0Ω		24K739396	19-1001		6804	1.3 Microhenries
L24	3rd Video IF	.1Ω	.1Ω	24B739386	17-4623	TV-130	6218	
L25	RF Choke	0Ω		24A737830	19-1001		6802	1.34 Microhenries
L26	Fil. Choke	0Ω		24K739396	19-1001		6804	1.3 Microhenries
L27	Series Peaking Coil	1.5Ω		24A737839	19-1005		6813	10 Microhenries
L28	Shunt Peaking Coil	5.3Ω		24K736006	19-3180	TV-184	6180	180 Microhenries
L29	Series Peaking Coil	6.5Ω		24K740513	19-3250e	TV-185e	6181e	240 Microhenries; Wound on 5600Ω resistor
L30	4.5MC Trap	4.3Ω		24K739392	20-1004			
L31	Series Peaking Coil	6.5Ω		24K740513	19-3250e	TV-185e	6181e	240 Microhenries; Wound on 5600Ω resistor
L32	Shunt Peaking Coil	5.8Ω		24K740117	19-3300		6133	330 Microhenries
L33	Shunt Peaking Coil	14.5Ω		24K740513			6156a	330 Microhenries; Wound on 2700Ω resistor

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L34	RF Choke	1.5Ω		24A737733	19-1005		4612	10 Microhenries
L35	1st Sound IF	3Ω		24B739304				Tapped ⓐ 1.4Ω
L36	2nd Sound IF	7.5Ω	8Ω	24B738943				
L37	RF Choke	1.6Ω		24K737733	19-1005		4612	10 Microhenries
L38	Quadrature Coil	3.7Ω		24B738942				
L39	Fil. Choke	0Ω		24K730391	19-1001		4604	1.3 Microhenries
L40	RF Choke	1.5Ω		24A733225	19-1005		4612	10 Microhenries
L41	RF Choke	1.5Ω		24A733225	19-1005		4612	10 Microhenries

■ Parallel with 5600Ω resistor.
▲ Parallel with 2700Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L42	37Ω		1V739709	19-1576	TV-163	6210			HS-5	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L43	.260A	49Ω	1.54HY	25K738763	C5037 ①	C-2996 ①	C-2326 ①	26C44	C-17X ①

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA	
K1	Ant. Input	470MMF ⓐ 1500V Cap. & 1Meg ½W Res.	51B740235	CRL	DA632
K2	Ant. Input	470MMF ⓐ 1500V Cap. & 1Meg ½W Res.	51B740235	CRL	DA632

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	MOTOROLA PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.260A	48K122479	1238A	RS350	6S350	5QS1	350A	
M2	.260A	48K122479	1238A	RS350	6S350	5QS1	350A	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		MOTOROLA PART No.	SYLVANIA PART No.	
M3		48C739300 *	1N60	Video Det. - (Plug in type)

*Alternate part #48K733204 (Plug in type)
Alternate part #48K722720 (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Tuner		TT-86A, VHF, Used in some versions of chassis TS-537, WTS-537.
	Tuner	1U738980	TT-86, VHF, Used in some versions of chassis TS-537, WTS-537.
	Tuner	1U738948	TT-86Y, VHF, Used in chassis TS-537Y, WTS-537Y.
	Tuner	1V738788	RTT-77, VHF, Used in chassis TTS-537.
	Tuner	1V738897	QTT-78, VHF, Used in chassis TTS-537Y.
M5	Tuner		WTT-87, UHF, Used in chassis TS-537Y, WTS-537Y.
	Tuner		NTT-37, UHF, Used in chassis TTS-537Y.
M6	Detector Ass'y.	24C739298	Includes 4th Video IF, 5.6 MMF Cap., 10MMF Cap., and M3 Crystal (Plug In). Alternate part #24C736478, M3 Crystal (Pigtail)
M7	Switch	40B736126	On-Off (Push Type) Used in chassis WTS-537, WTS-537Y only.
M8	Centering Device	48A721145-C	Includes yoke cover.
M9	Ion Trap	59K734028	
M10	Correction Magnet	48B737088	Alternate part #48B737087.
M11	Correction Magnet	48B737088	Alternate part #48B737087.
M12	Trimmer Cap.	20A736287	IF Link (20-140MMF)
	Knob	36B738679	Contrast - Models 21K53B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, 21T34B, BA, M, MA, Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, Y21T34B, BA, M, MA.
	Knob	36B738701	Contrast - Models 24T5BG, MG, Y24T5BG, MG, 24K13B, M, Y24K13B, M.
	Knob	36B738677	Horiz. Hold, Vert. Hold & Brightness (White)
	Knob	36B738714	Horiz. Hold, Vert. Hold & Brightness (Clear)
	Knob	36K738296	Fine Tuning - Models 21K53B, BA, M, MA, 21K55B, BA, M, MA, 21T32B, BA, CH, CHA, 21T34B, BA, M, MA, Y21K53B, BA, M, MA, Y21K55B, BA, M, MA, Y21T32B, BA, CH, CHA, Y21T34B, BA, M, MA.
	Knob	36K738680	Fine Tuning - Models 21K53BA, MA, Y21K53BA, MA, 21T32BA, Y21T32BA, 21T34BA, MA, Y21T34BA, MA.
	Knob	36C738713	Fine Tuning - Models 24K13B, M, Y24K13B, M, 24T5BG, MG, Y24T5BG, MG.
	Knob	36B738678	On-Off Volume - All Models.
	Knob	36K739331	VHF Channel Selector - Models 21K53B, M, 21T32B, CH, 21T34B, M.
	Knob	36K738682	VHF Channel Selector - Models 21K53BA, MA, 21K55BA, MA, 21T32BA, CHA, 21T34BA, MA.
	Knob	36C739330	VHF Channel Selector - Models Y21K53B, M, Y21T32B, CH, Y21T34B, M.
	Knob	36C738681	VHF Channel Selector - Models Y21K53BA, MA, Y21K55BA, MA, Y21T32BA, CHA, Y21T-4BA, MA.
	Knob	36K738936	VHF Channel Selector - Models 24K13B, M, 24T5BG, MG.
	Knob	36C738935	VHF Channel Selector - Models Y24K13B, M, Y21T5BG, MG.
	Glass	61K736858	Safety, Tinted - 21" Models
	Glass	61K738649	Safety, Tinted - 24" Models

ALTERNATE VHF TUNER

VHF ANT. TERMINAL BOARD
RF AMP 4BC8
MIXER A 5U8
OSC B 5U8
4BC8
5U8
(IF OUTPUT To Junction Of M12 & L18)
(RF AGC) To Junction Of C61 & R44
235V
To L17
(Filament String)
To Junction Of C105 & Pin 7 Of V13
FINE TUNING
Fine Tuning Shaft
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF Tuner RTT-77 Used With Chassis TTS-537.

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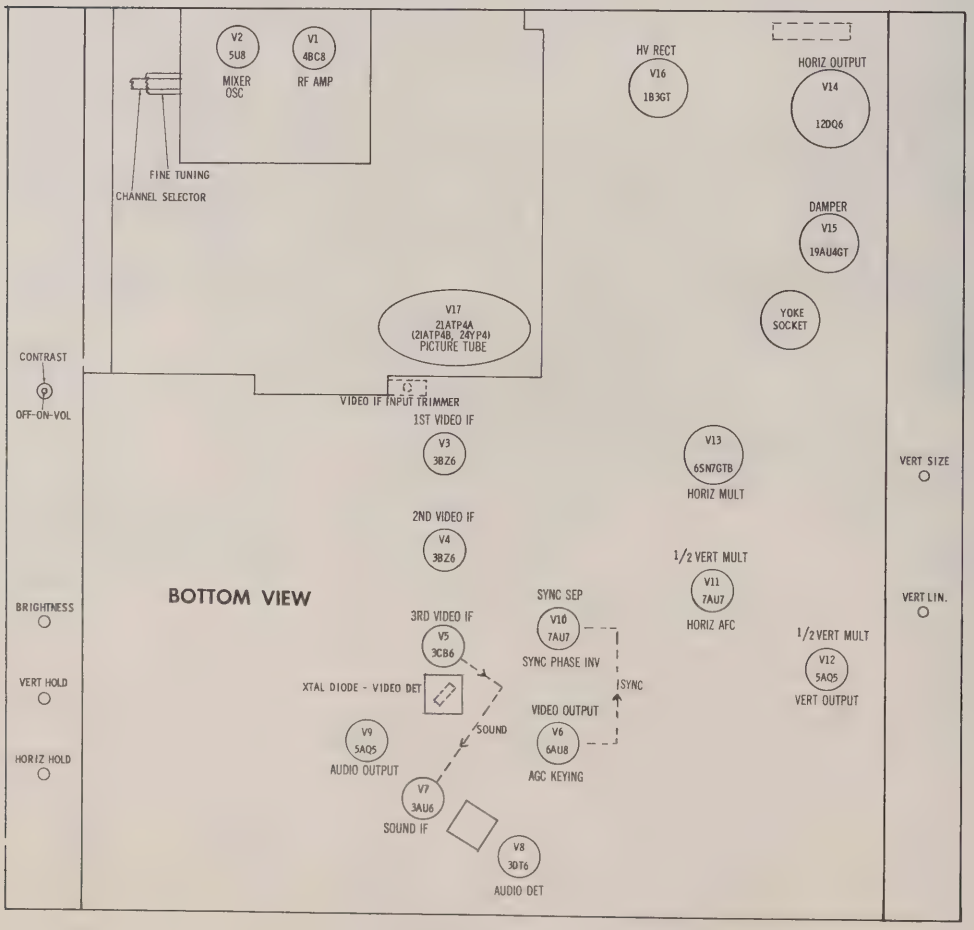
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	4BC8	†1800Ω	INF	INF	9Ω	8Ω	INF	2.2Meg	0Ω	0Ω
V2	5U8	†12K	45K	†270K	9Ω	11Ω	†15K	0Ω	0Ω	15K
V3	3BZ6	332K	47Ω	20Ω	19Ω	†8200Ω	†8200Ω	0Ω		
V4	3BZ6	332K	47Ω	19Ω	18Ω	†8200Ω	†8200Ω	0Ω		
V5	3CB6	1200Ω	120Ω	18Ω	17Ω	†8200Ω	†39K	0Ω		
V6	6AU8	†3300Ω	†38K	1.2Meg	4Ω	1.5Ω	6Ω	3900Ω	†12K	†5000Ω
V7	3AU6	3Ω	0Ω	14Ω	15Ω	†13K	†32K	150Ω		
V8	3DT6	9.5Ω	560Ω	1.5Ω	1Ω	†270K	†22K	560K		
V9	5AQ5	1Meg	330Ω	17Ω	15Ω	†1000Ω	†700Ω	1Meg		
V10	7AU7	†1Meg	2.2Meg	6Ω	11Ω	11Ω	†33K	20K	2200Ω	12Ω
V11	7AU7	*1.2Meg	1.8Meg	0Ω	1Ω	1Ω	22K	330K	120K	0Ω
V12	5AQ5	1.5Meg	0Ω	12Ω	14Ω	†600Ω	†200Ω	NC		
V13	6SN7GTB	70K	†120K	1000Ω	5Meg	†11K	1000Ω	6Ω	8Ω	
V14	12DQ6	TP	20Ω	TP	†16K	1Meg	TP	22Ω	0Ω	TOP CAP 12.5Ω
V15	19AU4	NC	TP	INF	NC	50Ω	TP	24Ω	22Ω	
V16	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP 182Ω
V17	21ATP4A	4Ω	80K	Pin 6 *1.3Meg	Pin 10 *1.3Meg	Pin 11 270K	Pin 12 6Ω			

† MEASURED FROM OUTPUT OF M1.
* MEASURED FROM PIN 3 OF V15.
TP TIE POINT
NC NO CONNECTION



TUBE PLACEMENT CHART

PROPERTY OF
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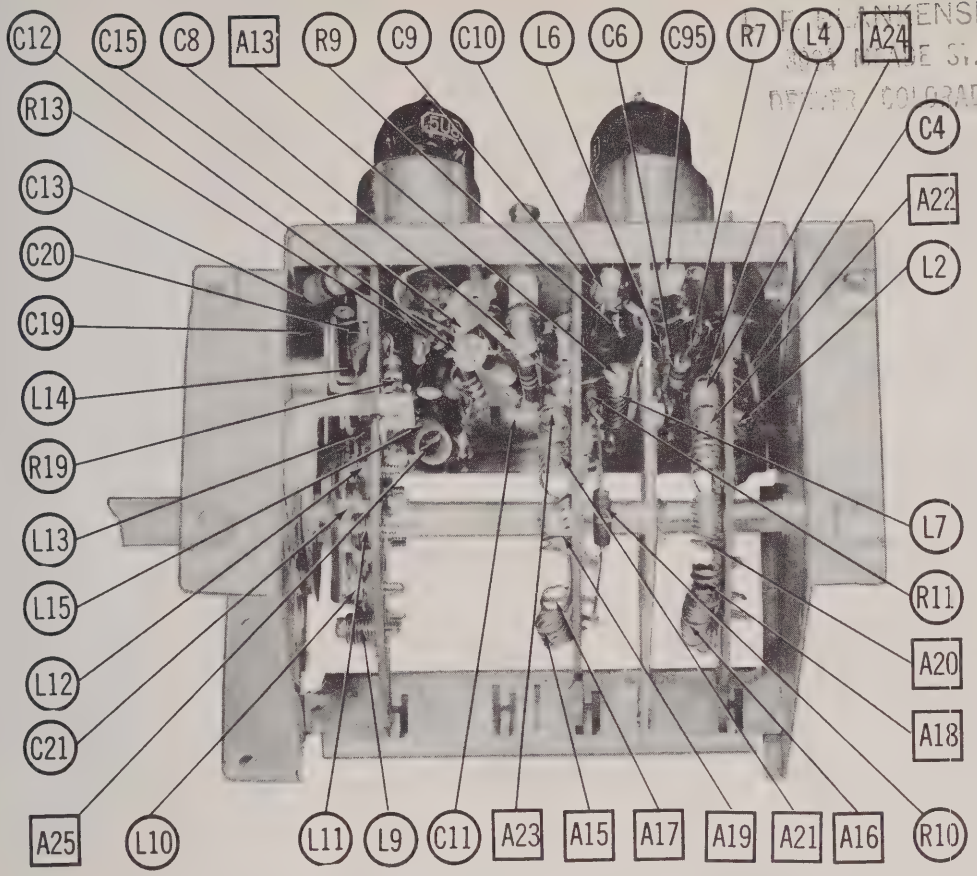
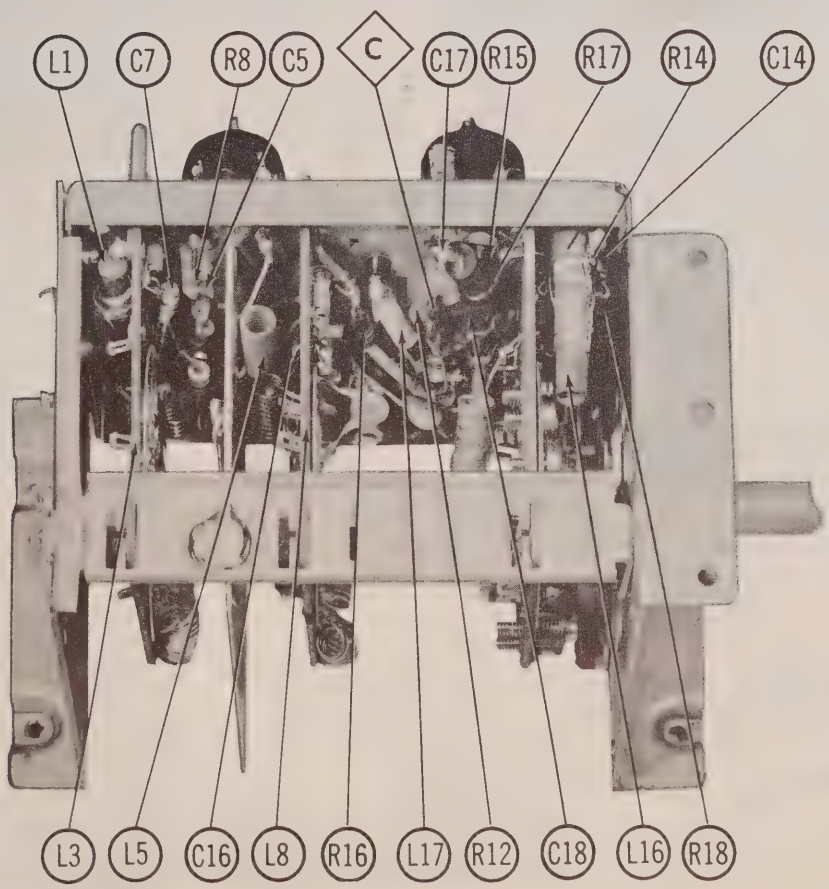
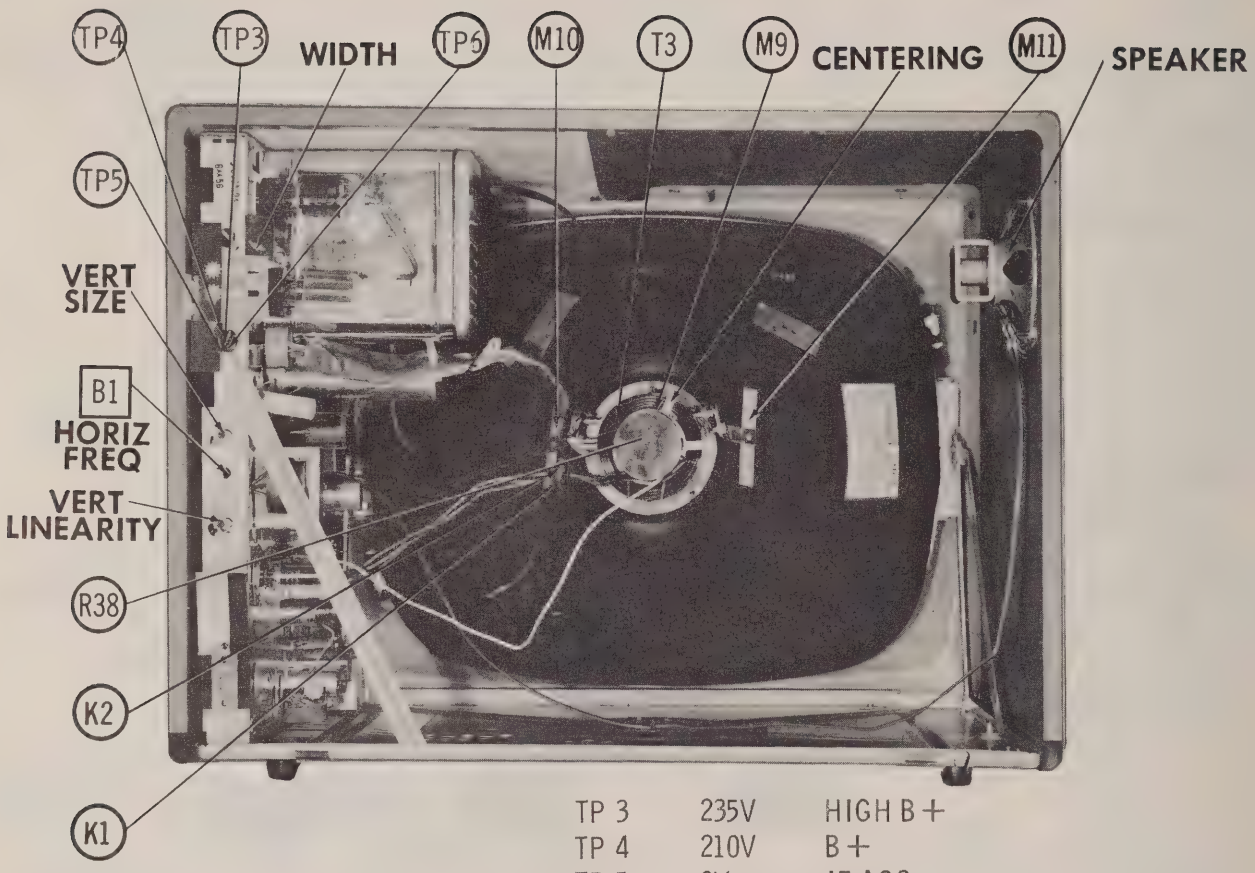
[illegible]E ST.
[illegible]ADO



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



TP 3	235V	HIGH B+
TP 4	210V	B+
TP 5	0V	IF AGC
TP 6	-.6V	HORIZ. AFC

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern. Adjust the brightness and contrast controls for a normal picture.

1. Short out the AFC voltage by connecting a clip lead from TP-6 of the service test receptacle to chassis. Connect a .1MFD, 400 volt capacitor to TP-4 of the service test receptacle. Connect the other side of the capacitor to chassis.

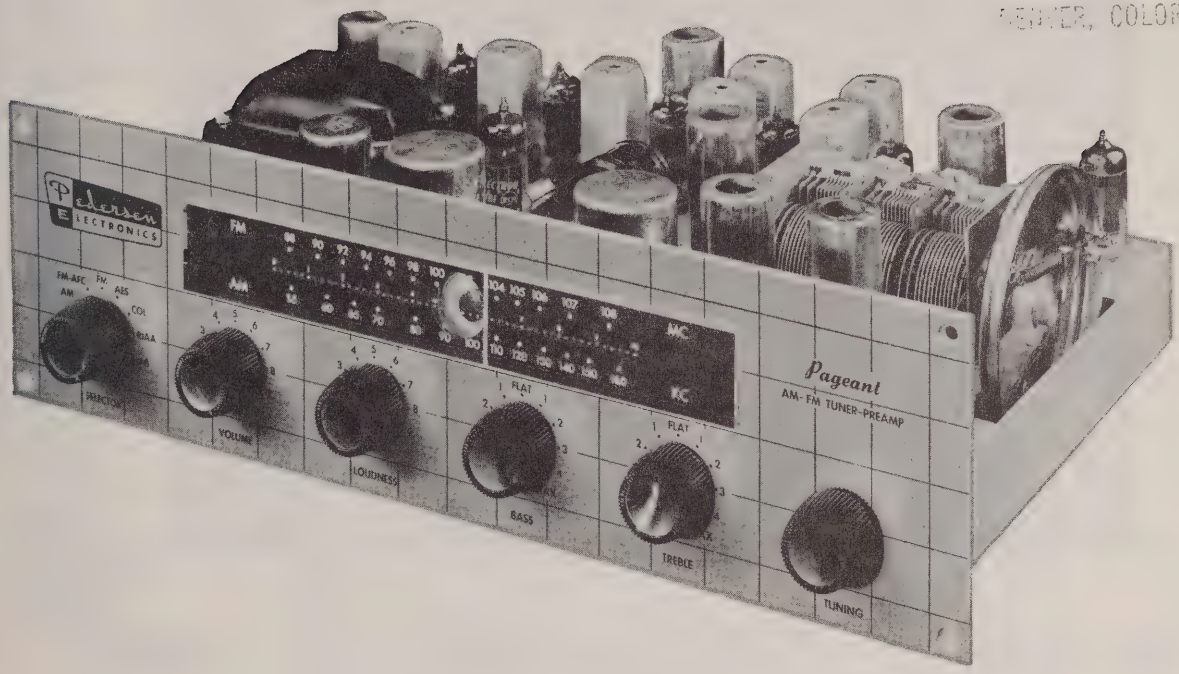
2. Adjust the horizontal hold control to the point where the picture remains stable horizontally.

3. Remove the capacitor from TP-4 of the service test receptacle and adjust the horizontal frequency slug (B1) to the point where the picture remains stable horizontally.

4. Remove the clip lead between TP-6 of the service test receptacle and chassis. Adjust the horizontal hold control until the picture remains in sync.

Adjust the horizontal size (located on the rear of the chassis) for a picture slightly larger than necessary to fill the picture mask horizontally.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



PEDERSEN
MODEL AFM-6A

TRADE NAME	Pedersen Model AFM-6A	
MANUFACTURER	Pedersen Electronics, 3667 Mt. Diablo Blvd., P.O. Box 572, Lafayette, Calif.	
TYPE SET	AC Operated FM-AM Tuner	
TUBES	Fifteen	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING .25 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	535KC-1620KC	FREQ. MOD. 88MC-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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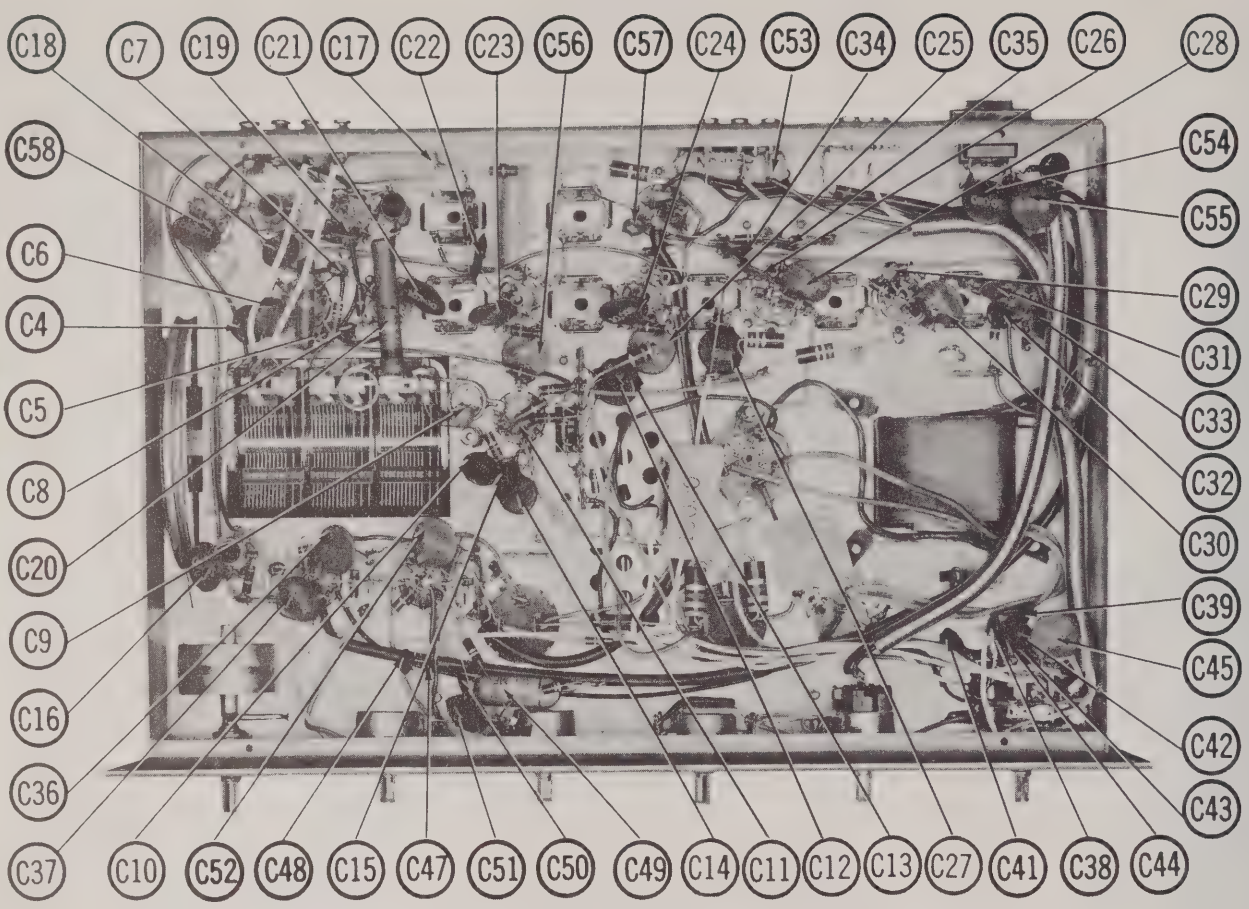
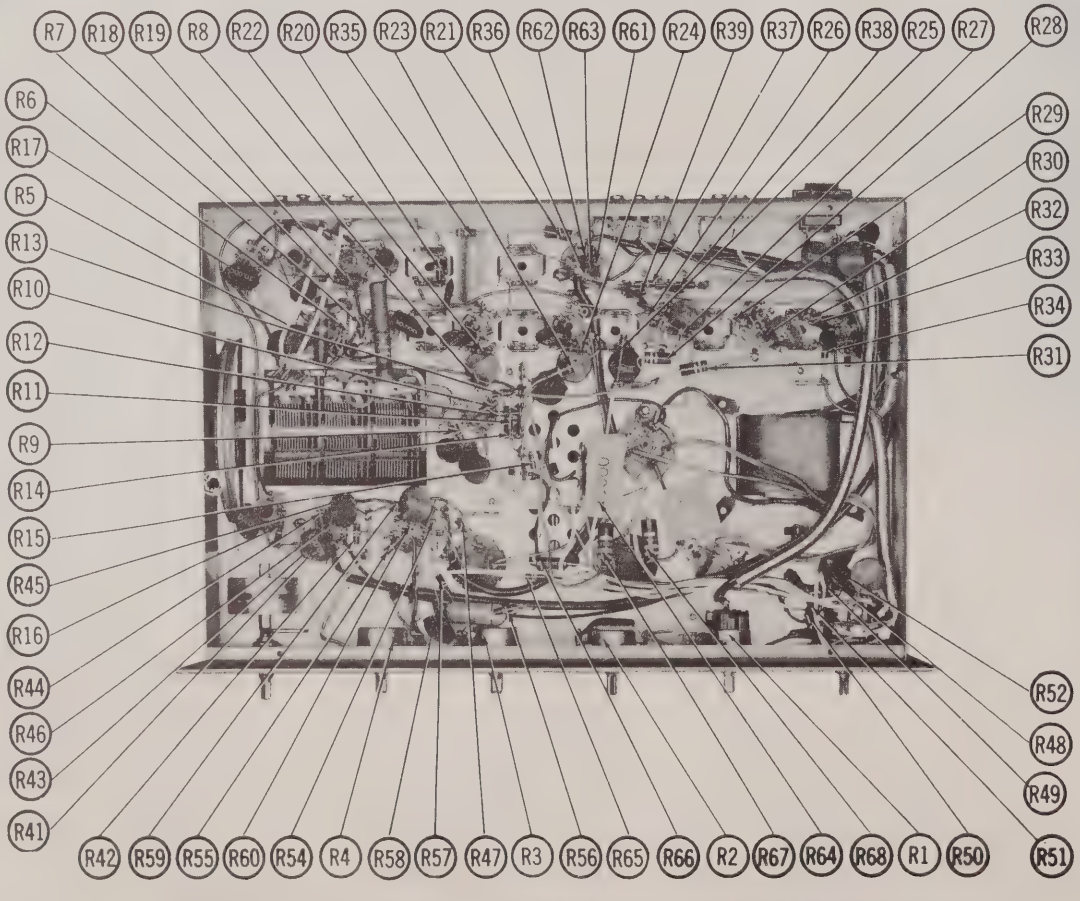
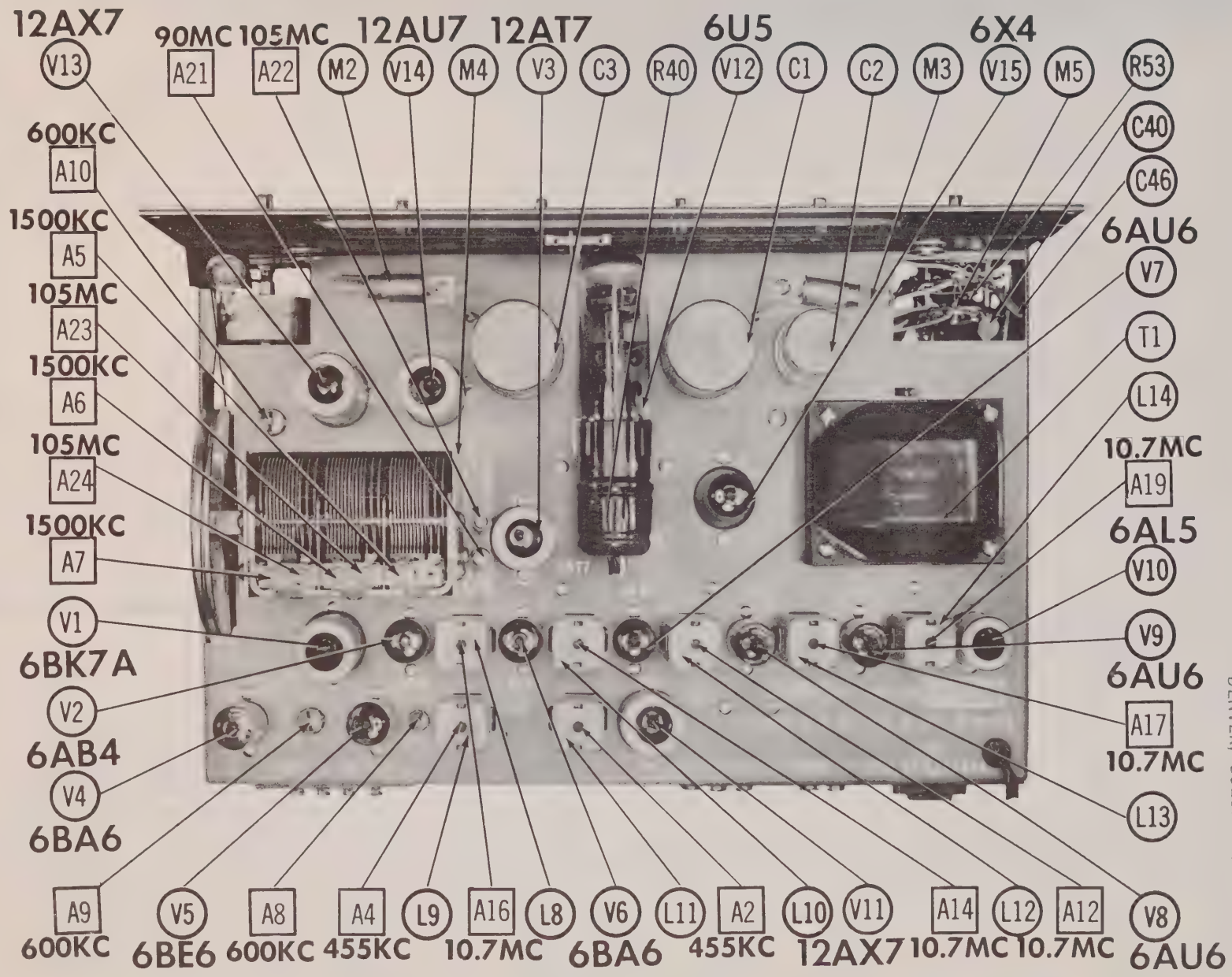


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



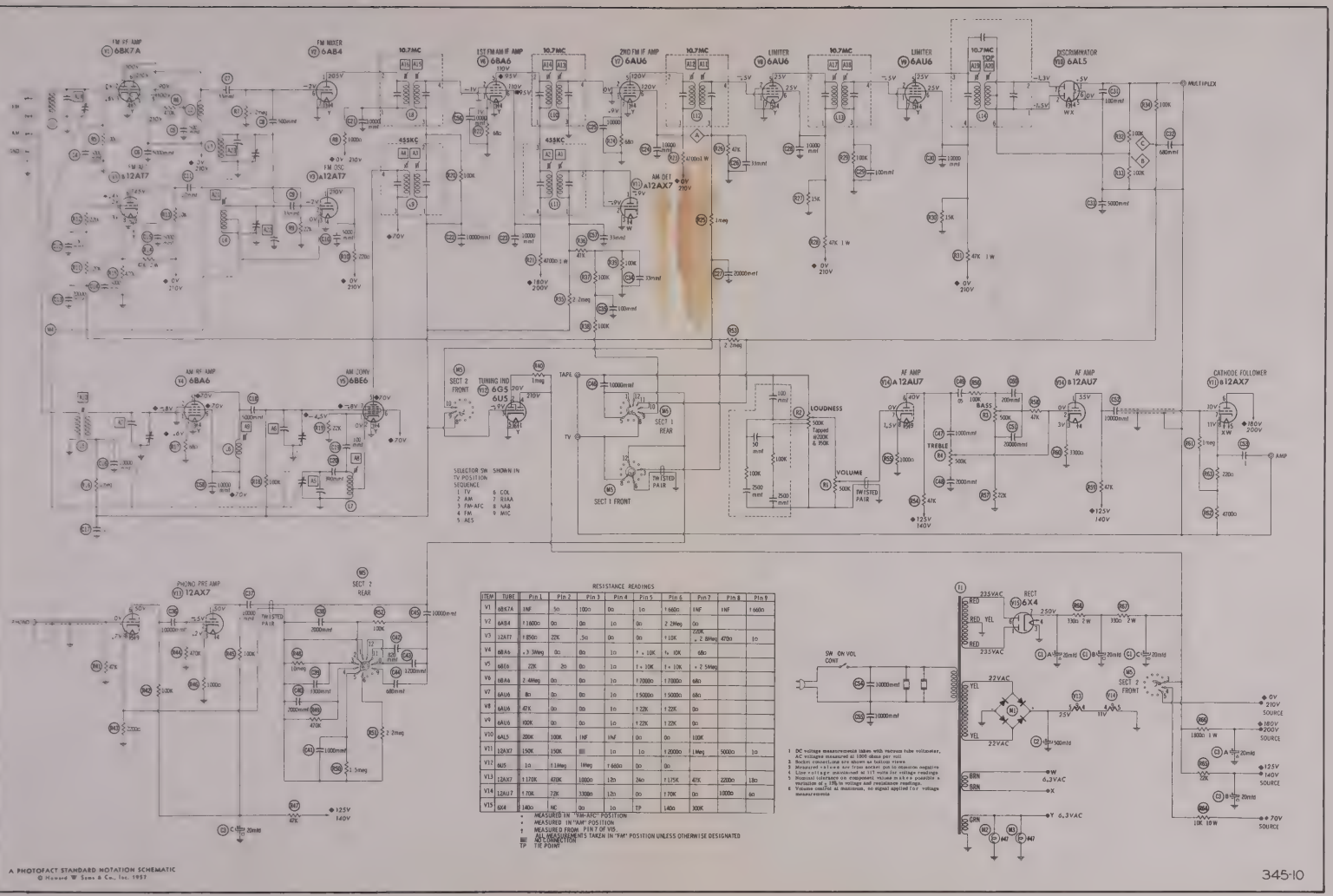
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS TOP VIEW

PEDERSEN
MODEL AFM-6A

PROPERTY OF
L. E. BLANKENSHIP
3911 MEADE ST.
DENVER, COLORADO



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BK7A	INF	50	100Ω	0Ω	1Ω	†660Ω	INF	INF	†660Ω
V2	6AB4	†600Ω	0Ω	0Ω	1Ω	0Ω	2.2Meg	0Ω		
V3	12AT7	†850Ω	22K	50Ω	0Ω	0Ω	†10K	100K + 2.8Meg	470Ω	1Ω
V4	6BA6	•3.3Meg	0Ω	0Ω	1Ω	†• 10K	†• 10K	68Ω		
V5	6BE6	22K	2Ω	0Ω	1Ω	†• 10K	†• 10K	• 2.5Meg		
V6	6BA6	2.4Meg	0Ω	0Ω	1Ω	†20000Ω	†1000Ω	68Ω		
V7	6AU6	8Ω	0Ω	0Ω	1Ω	†50000Ω	†5000Ω	68Ω		
V8	6AU6	47K	0Ω	0Ω	1Ω	†22K	†22K	0Ω		
V9	6AU6	100K	0Ω	0Ω	1Ω	†22K	†22K	0Ω		
V10	6AL5	220K	100K	INF	INF	0Ω	0Ω	100K		
V11	12AX7	150K	150K	IIII	1Ω	1Ω	†20000Ω	1Meg	5000Ω	1Ω
V12	6G5	1Ω	†1Meg	1Meg	†660Ω	0Ω	0Ω			
V13	12AX7	†170K	470K	18000Ω	12Ω	24Ω	†125K	47K	220Ω	18Ω
V14	12AU7	†70K	72K	3300Ω	12Ω	0Ω	†70K	0Ω	1000Ω	6Ω
V15	6X4	140Ω	NC	0Ω	1Ω	TP	140Ω	300K		

• MEASURED IN "FM-AFC" POSITION
• MEASURED IN "FM" POSITION
† MEASURED FROM PIN 7 OF V15.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
CCW COUNTER CLOCKWISE
CW CLOCKWISE
TP TIE POINT

1 DC voltage measurements taken with vacuum tube voltmeter.
2 AC voltages measured at 1000 ohms per volt.
3 Socket connections are shown as bottom views.
4 Measured values are from socket pin to chassis negative.
5 Line voltage maintained at 117 volts for voltage readings.
6 Normal tolerance on component values is also possible a variation of ± 10% in voltage and resistance readings.
7 Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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345-10

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Set dial pointer (with tuning control fully counter clockwise so that it reads "0" on logging scale.
Remove bottom cover before aligning .

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V5). Low side to chassis.	455KC (400∿Mod)	AM	Tuning Gang fully open	Across audio output	A1, A2, A3, A4	Adjust for maximum output.
2.	200MMF	High side to AM antenna terminal. Low side to chassis.	1500KC	"	1500KC	"	A5, A6, A7	"
3.	"	"	600KC	"	Tune to 600KC signal	"	A8, A9, A10	Adjust for maximum output. Repeat steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 2 (grid) of 12AT7 (V3). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A11, A12, A13, A14, A15, A16	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point Ⓑ. Common to chassis.	A17, A18, A19	"
6.	"	"	"	"	"	DC probe to point Ⓒ. Common to chassis.	A20	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 2 (grid) of 12AT7 (V3). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A11, A12, A13, A14, A15, A16	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A17, A18, A19	"
6.	"	"	"	"	"	Vert. Amp. to point Ⓒ. Low side to chassis.	A20	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A19 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	90MC	FM	90MC	DC probe to point Ⓐ. Common to chassis.	A21	Adjust for maximum deflection.
8.	"	"	105MC	"	105MC	"	A22, A23, A24	Adjust for maximum deflection. Replace bottom cover and check 90MC reading. If necessary, readjust A21.

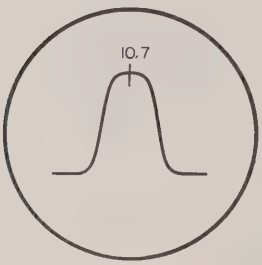


FIG. 1

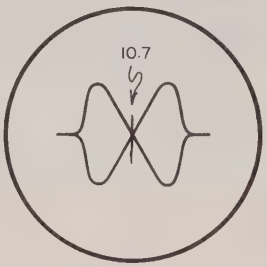


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6BK7A	
V2	FM Mixer	6AB4	
V3	FM Oscillator-AFC	12AT7	
V4	AM RF Amplifier	6BA6	
V5	AM Converter	6BE6	
V6	1st. FM-AM IF Amplifier	6BA6	
V7	2nd. FM IF Amplifier	6AU6	
V8	1st. Limiter	6AU6	

ITEM No.	USE	TYPE	NOTES
V9	2nd. Limiter	6AU6	
V10	Discriminator	6AL5	
V11	AM Det. -AVC-Cathode Follower	12AX7	
V12	Tuning Indicator	6U5/6G5	
V13	Phono Preamplifier	12AX7	
V14	AF Amplifier	12AU7	
V15	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

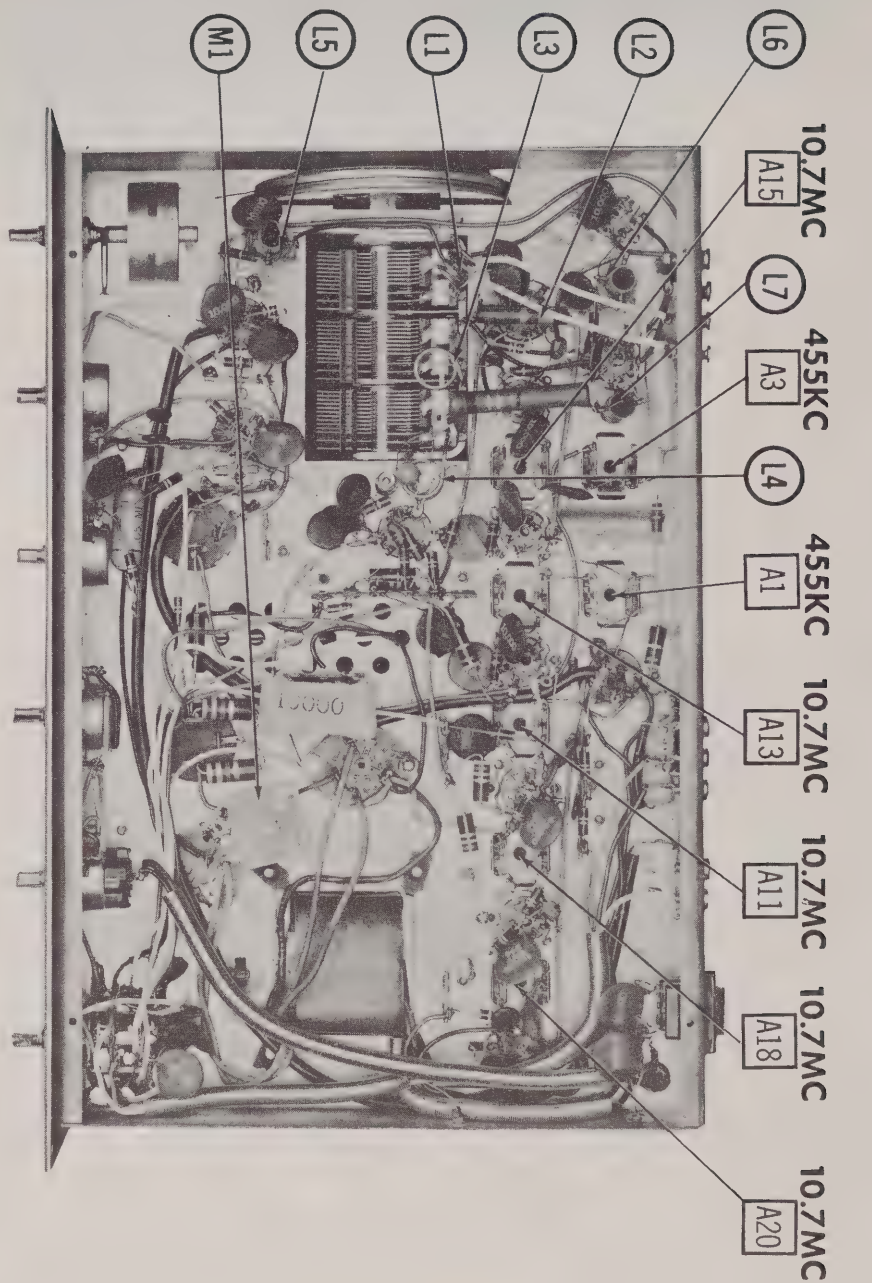
ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PEDERSEN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲20	350	EY-530	AFH4-111					
B	■20	350							
C	▲20	350							
C2	50Q	25	UP-500-25		A0120	TC2505			TVL-1220
C3A	▲20	350	EY-530						
B	▲20	350							
C	■20	350							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA								NOTES
	CAP.	VOLT	PEDERSEN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C4	5000			BPD-005	DD-502	K080	ED-005	UC-525	5HK-D5		
C5	500			BPD-0005	DD-501	G061	ED-500	UC-535	5GA-T5		
C6	5000			BPD-005	DD-502	K080	ED-005	UC-525	5HK-D5		
C7	33			BPD-000033	DD-330	G029	ED-33	UC-5433	5GA-Q33		
C8	500			BPD-0005	DD-501	G061	ED-500	UC-535	5GA-T5		
C9	33			BPD-000033	DD-330	G029	ED-33	UC-5433	5GA-Q33		
C10	5000			BPD-005	DD-502	K080	ED-005	UC-525	5HK-D5		
C11	12			N080-SI 10							
C12	100			BPD-0001	DD-101	G042	ED-100	UC-531	5GA-T1		
C13	20000			BPD-02	DD-203	K085	ED-02		5HK-S2		
C14	5000			BPD-005	DD-502	K080	ED-005	UC-525	5HK-D5		
C15	5000			BPD-005	DD-502	K080	ED-005	UC-525	5HK-D5		
C16	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		
C17	.1	400		P488N-1	DF-104			GEM-401	4TM-P1		
C18	5000			BPD-005	DD-502	K080	ED-005	UC-525	5HK-D5		
C19	100			NP0-SI00	TCZ-100	TZ30	TCO-100	ZT-531	5TCC-T1		
C20	390										
C21	10000			BPD-01	DD-103	K082	ED-01	ZT-531	5HK-S1		
C22	10000			BPD-01	DD-103	K082	ED-01	ZT-531	5HK-S1		
C23	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		
C24	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		
C25	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		
C26	33			BPD-000033	DD-330	G029	ED-33	UC-5433	5GA-Q33		
C27	20000			BPD-02	DD-203	K085	ED-02		5HK-S2		
C28	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		
C29	100			BPD-0001	DD-101	G042	ED-100	UC-531	5GA-T1		
C30	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		
C31	100			BPD-0001	DD-101	G042	ED-100	UC-531	5GA-T1		
C32	680			BPD-00068	DD-681	K065	ED-680	UC-5368	5GA-T68		
C33	5000			BPD-005	DD-502	K080	ED-005	UC-525	5HK-D5		
C34	33			BPD-000033	DD-330	G029	ED-33	UC-5433	5GA-Q33		
C35	100			BPD-0001	DD-101	G042	ED-100	UC-531	5GA-T5		
C36	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		
C37	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		
C38	2000			BPD-002	DD-202	K072	ED-002	UC-522	5HK-D2		
C39	3300			BPD-0033	D6-332	K077	ED-0033	UC-5233	5HK-D33		
C40	2000			BPD-002	DD-202	K072	ED-002	UC-522	5HK-D2		
C41	1000			BPD-001	DD-102	K069	ED-001	UC-521	5HK-D1		
C42	820			SI 820	D6-821	G067	ED-820		5GA-T82		
C43	1200			DI-1200	D6-122	G070	ED-0012	UC-5212	5GA-D12		
C44	680			BPD-00068	DD-681	K065	ED-680		5GA-T68		
C45	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	PEDERSEN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C46	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C47	1000			BPD-001	DD-102	K069	ED-001	UC-521	5HK-D1	
C48	2000			BPD-002	DD-202	K072	ED-002	UC-522	5HK-D2	
C49	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C50	200			BPD-0002	DD-201	G050	ED-200	UC-532	5GA-T2	
C51	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C52	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C53	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C54	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C55	10000			BPD-01	DD-103	K082	ED-01		5HK-S1	
C56	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C57	33			BPD-000033	DD-330	G029	ED-33	UC-5433	5GA-Q33	
C58	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	PEDERSEN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	28-508A	AB-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch			KB-1	SWE-12	76-1	US-26	Attach to R1A
R2A	500K	½	28-510A				UDT-285	Loudness - tap @200K & 350K
B	Shaft						Not Req.	
R3A	500K	½	28-506A	AB-59	A47-500K-Z	Q13-133	U48	Bass
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	Attach to R3A
R4A	500K	½	28-506A	AB-59	A47-500K-Z	Q13-133	U48	Treble
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	Attach to R4A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	PEDERSEN PART No.	IRC PART No.	NOTES
R5	100Ω			BTS-100	
R6	470K			BTS-470K	
R7	2.2Meg			BTS-2.2Meg	
R8	1000Ω			BTS-1000	
R9	22K			BTS-22K	
R10	220Ω			BTS-220	
R11	220K			BTS-220K	
R12	220Ω			BTS-220	
R13	10K			BTS-10K	
R14	47K	2		BTB-47K	
R15	470Ω			BTS-470	
R16	1Meg			BTS-1Meg	
R17	68Ω			BTS-68	
R18	100K			BTS-100K	
R19	22K			BTS-22K	
R20	100K			BTS-100K	
R21	4700Ω	1		BTA-4700	
R22	68Ω			BTS-68	
R23	4700Ω	1		BTA-4700	
R24	68Ω			BTS-68	
R25	1Meg			BTS-1Meg	
R26	47K			BTS-47K	
R27	15K			BTS-15K	
R28	47K	1		BTA-47K	
R29	100K			BTS-100K	
R30	15K			BTS-15K	
R31	47K	1		BTA-47K	
R32	100K			BTS-100K	
R33	100K			BTS-100K	
R34	100K			BTS-100K	
R35	2.2Meg			BTS-2.2Meg	
R36	47K			BTS-47K	
R37	100K			BTS-100K	
R38	100K			BTS-100K	
R39	100K			BTS-100K	
R40	1Meg			BTS-1Meg	
R41	47K			BTS-47K	
R42	100K			BTS-100K	
R43	2200Ω			BTS-2200	
R44	470K			BTS-470K	
R45	100K			BTS-100K	
R46	1000Ω			BTS-1000	
R47	47K			BTS-47K	
R48	10Meg			BTS-10Meg	
R49	470K			BTS-470K	
R50	1.5Meg			BTS-1.5Meg	
R51	2.2Meg			BTS-2.2Meg	
R52	100K			BTS-100K	
R53	2.2Meg			BTS-2.2Meg	
R54	47K			BTS-47K	
R55	1000Ω			BTS-1000	
R56	100K			BTS-100K	
R57	22K			BTS-22K	
R58	47K			BTS-47K	
R59	47K			BTS-47K	
R60	3300Ω			BTS-3300	
R61	1Meg			BTS-1Meg	
R62	4700Ω			BTS-4700	
R63	220Ω			BTS-220	
R64	10K	10		1 3/4A-10K	
R65	22K			BTS-22K	
R66	1800Ω	1		BTA-1800	
R67	330Ω	2		BTB-330	
R68	330Ω	2		BTB-330	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	PEDERSEN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @.25A	475VCT @.030A	21VAC @.22A	6.3VAC @.62A	6.3VAC @4.1A	50-56A					

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	PEDERSEN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	0Ω		FM-201				Tapped
L2	RF Choke	6.3Ω						5.5 Microhenries
L3	FM RF Coil	0Ω		FM-202				
L4	FM Osc. Coil	0Ω		FM-203				Tapped
L5	AM Ant. Coil	1.8Ω	5.5Ω	WC-418A				
L6	AM RF Coil	4.5Ω		WC-419A				
L7	AM Osc. Coil	4.6Ω		WC-471A			70-OSC	Tapped @.5Ω
L8	1st. FM IF	.7Ω	.7Ω	1607-2	16-3487	FM-254	1463	
L9	1st. AM IF	26Ω	26Ω	1655-11	16-6758	BC-352	12-C1	
L10	2nd. FM IF	.7Ω	.7Ω	1607-2	16-3487	FM-254	1463	
L11	2nd. AM IF	26Ω	26Ω	1655-11	16-6758	BC-353	12-C2	
L12	3rd. FM IF	.7Ω	.7Ω	1607-2	16-3487	FM-254	1463	
L13	FM Limiter	.7Ω	.7Ω	1607-2	16-3487	FM-254	1463	
L14	Discriminator	.8Ω	1ΩCT	2607-1	17-3496	FM-253	1464	

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	PEDERSEN PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.22A	#1015	1016	B1B	B260	M1B1E1G	154B	

MISCELLANEOUS

ITEM No.	PART NAME	PEDERSEN PART No.	NOTES
M2	Dial Lamp		#47
M3	Dial Lamp		#47
M4	Tuning Cap.	3563	6 Gang (AM Sections: 23-310MMF, 23-310MMF, 23-315MMF)
M5	Switch	8-112-A	Selector, 2 Gang, 9 position (Rotary, wafer type)

RETMA MEMBER

PHILCO MODELS E1362, E1762, E1764

L. F. [illegible]
3924 MEADE ST.
DENVER, COLORADO

PHILCO MODELS
E1362, E1762, E1764

PHILCO MODELS
E1362, E1762, E1764

TRADE NAME	Philco Models E-1362, E-1762, E-1764
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated Phono Amplifier With 3 Speed Automatic Record Changer
TUBES (Three)	Types 12AT7 AF Amplifier, (2) 50L6GT Output
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .44 Amp. @ 117 Volts AC

RECORD CHANGER UNIT - PHILCO MODEL M-26

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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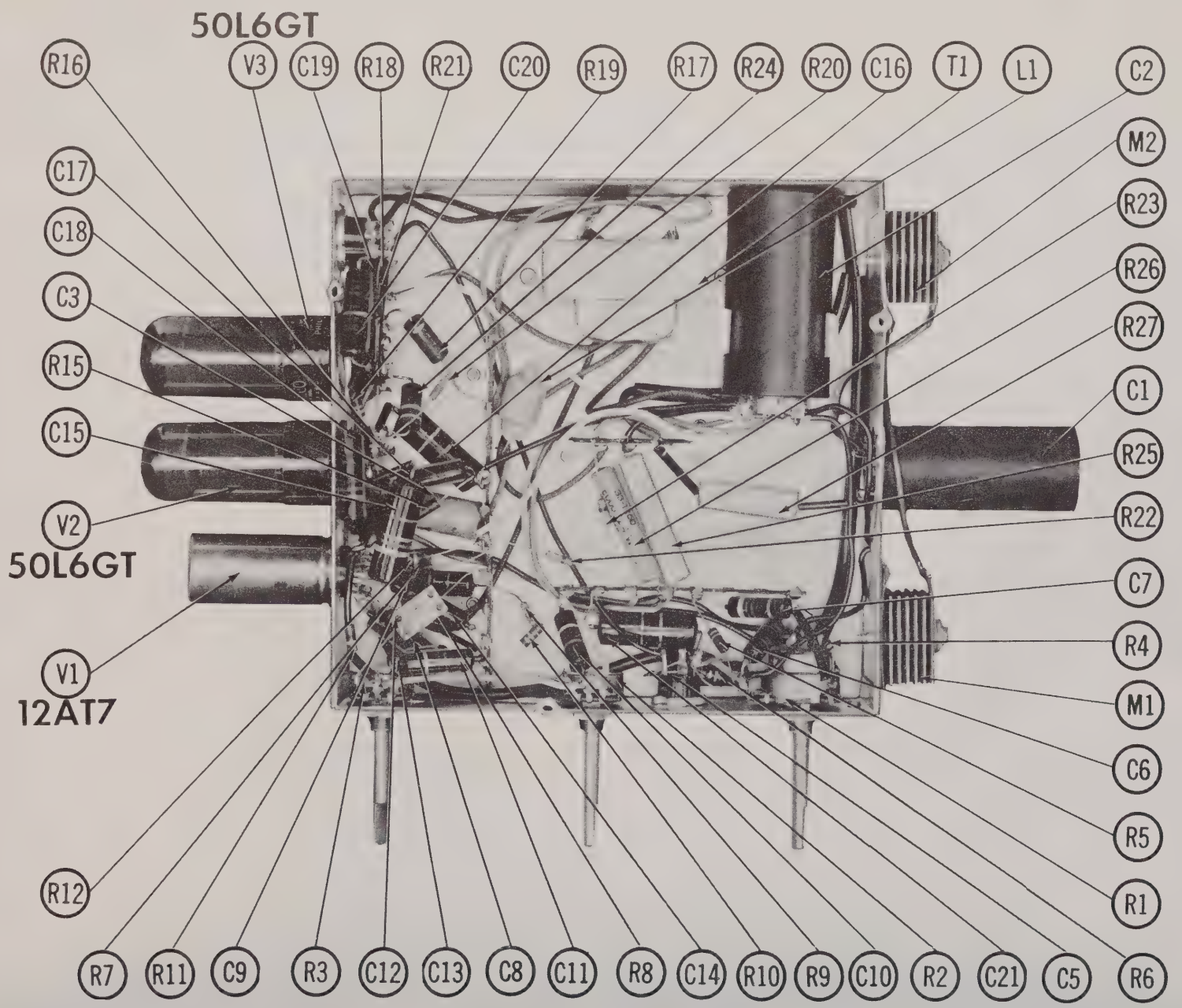


CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AT7	
V2	Output	50L6GT	
V3	Output	50L6GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	20	150	30-2568-63	AFH1-15		FP135	TMS-17	S-065	TVL-1405
C2A	▲40	300	30-2568-65	AFH4-02	DO020	FP432. 4	TMQ-3	S-010	TVL-4579
B	■40	200							
C	10	200							
D	▲20	200							
C3	10	50	45-3035-6	PRS50V10	BR105	TC32	TD-10-50	FM-0510	TVA-1304

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	.1	400	30-4650-47	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C5	.01	600	30-4650-58	BPD-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C6	.0033	400	30-4650-55	BPD-0033	D6-332	CUB6D33	GP-3300	GEM-6233	6TM-D33	Note 1
C7	.0047	400	30-4650-56	BPD-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C8	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C9	.01	600	30-4650-58	BPD-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C10	.001	400	30-4650-52	BPD-001	D6-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C11	.01	400	30-4650-41	BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C12	560	500	60-15065307	S1560	D6-561	1R5T56	GP-560	UC-5356	MS-356	
C13	.0047	600	30-4650-56	BPD-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C14	.001	600	30-4650-52	BPD-001	D6-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C15	.047	600	30-4650-62	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C16	.1	400	30-4650-47	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C17	.001	1000	30-4650-86	HVD-15-1000	DD16-102	CUB16D1	HD15-1000	GEM-1021	10TM-D1	
C18	.0033	1000	30-4650-89	HVD-15-3300	DD16-302	CUB16D33	HD15-3300	GEM-16233	MB-D33	
C19	.001	1000	36-4650-86	HVD-15-1000	DD16-102	CUB16D1	HD15-1000	GEM-1021	10TM-D1	
C20	.01	1000	30-4650-92	P1088N-01	DD16-103	CUB16S1		GEM-1011	10TM-S1	
C21	.1	400	30-4650-47	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

Note 1: Models E-1762 and E-1764 use .01MFD in this application. (Part #30-4650-58).

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	33-5564-18	ABT-175			UDT-296	Volume Tap ② 250K & 1.2Meg
B	Shaft		Not Req.	AK-3			Not Req.	Attach to R1A
C	Switch		Not Req.	KB-1			US-26	Attach to R1A
R2A	1Meg	½	33-5565-79	B-70	A47-1Meg-Z	Q13-137	U53	Bass
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	1Meg	½	33-5565-79	B-70	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No.	IRC PART No.	NOTES
R4	82K		66-3828340	BTS-82K	
R5	22K		66-3228340	BTS-22K	
R6	270K		66-4278340	BTS-270K	
R7	100K		66-4108340	BTS-100K	
R8	1000Ω		66-2108340	BTS-1000	
R9	220K		66-4228340	BTS-220K	
R10	22K		66-3228340	BTS-22K	
R11	100K		66-4108340	BTS-100K	
R12	100K		66-4108340	BTS-100K	
R13	100Ω		66-1108340	BTS-100	Note 1
R14	100Ω		66-1108340	BTS-100	Note 1
R15	1000Ω		66-2108340	BTS-1000	
R16	470K		66-4478340	BTS-470K	
R17	120Ω	2	66-1125340	BTB-120	
R18	2. 2Meg		66-5228340	BTS-2. 2Meg	
R19	4700Ω		66-2478340	BTS-4700	
R20	3300Ω		66-2338340	BTS-3300	
R21	2. 2Meg		66-5228340	BTS-2. 2Meg	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No.	IRC PART No.	NOTES
R22	10K		66-3108340	BTS-10K	
R23	10K		66-3108340	BTS-10K	
R24	47Ω	2	66-0475340	BTB-47	
R25	10K	10	33-1362-1	PW10-10K	
R26	5K	4	33-1360	PW4-5000	
R27	50Ω	7	33-1335-84	PW7-50	
R28	100K			BTS-100K	Note 1

Note 1: Not used in some models.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	5400Ω	3-4Ω	32-8670						

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA PHILCO PART No.	QUAM PART No.	RCA TYPE No.	NOTES
SP1	8"	PM	3-4Ω	36-1651-8 ①	8A31	225S1	① Used in models E-1362 and E-1762.
	10"	PM		36-1653-4 ②			② Used in model E-1764.
SP2				36-1656 ③			③ Electrostatic Speaker.
SP3				36-1661 ④			④ Acoustic Resonator.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Crossover Choke	170Ω		32-4628				

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA PHILCO PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.105A	34-8003-2	1005A	RS150	6S150	5P1	150	
M2	.105A	34-8003-2	1005A	RS150	6S150	5P1	150	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA PHILCO PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M3	425-0009					

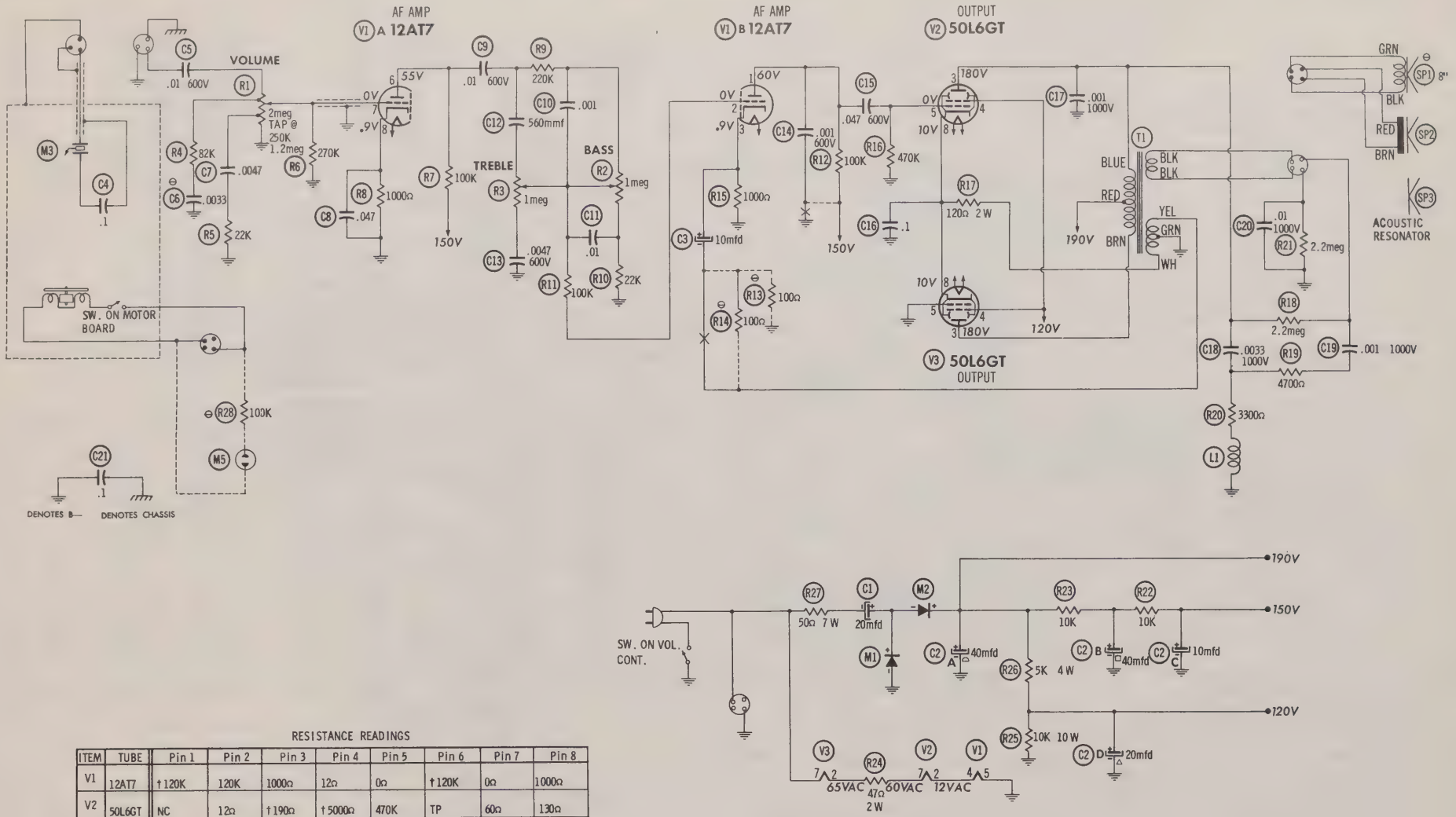
PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA PHILCO PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M4	45-9787	*PH-12 or †PH-13 or ♦† PH-13SD or ♦PH-13D	†46TPS or ♦†W-46DS or ♦W-46TPD	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M5	Neon Light	76-11043-1	Philco Part No. Includes Neon Light, R28, Lens & Plug Ass'y.
	Cabinet	11180	Model E-1362M (Mahogany)
	Cabinet	11180-1	Model E-1362L (Light)
	Cabinet	11171	Model E-1762M (Mahogany)
	Cabinet	11171-1	Model E-1762L (Light)
	Cabinet	11172	Model E-1764M (Mahogany)
	Cabinet	11172-1	Model E-1764L (Light)
	Cabinet	11172-2	Model E-1764F (Fruitwood)
	Knob	54-6159-10	Control (3 used) Models E-1362M, L.
	Knob	54-6093-4	Control (3 used) Models E-1762M, L.
	Knob	54-6147-22	Control (3 used) Models E-1764M, L, F.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12AT7	†120K	120K	1000Ω	12Ω	0Ω	†120K	0Ω	1000Ω
V2	50L6GT	NC	12Ω	†190Ω	†5000Ω	470K	TP	60Ω	130Ω
V3	50L6GT	NC	125Ω	†190Ω	†5000Ω	0Ω	TP	185Ω	130Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
TP TIE POINT

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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3924 MEADE ST.
DENVER, COLORADO

RCA VICTOR MODELS
7-BX-8J, 7-BX-8L (Ch. RC-1162)

RCA VICTOR MODELS
7-BX-8J, 7-BX-8L (Ch. RC-1162)

TRADE NAME	RCA Victor Models 7-BX-8J, 7-BX-8L (Ch. RC-1162)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.
TYPE SET	Three Power Portable AM Receiver
TUBES (Five)	Types 1T4 RF Amplifier, 1R5 Converter, 1T4 IF Amplifier, 1U5 Det-AVC-AF Amp., 3V4 Output
POWER SUPPLY RATING	110-120 Volts AC-DC (or) 9 Volts "A" Supply & 90 Volts "B" Supply In Pack Form .15 Amp. @ 117 Volts AC (or) 50MA @ 9 Volts DC & 14.5MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.005MFD	High side to pin 6 (grid) of 1T4 (V3). Low side to B-.	455KC (400~ Mod)	Point of non-interference.	Across voice coil.	A1, A2	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	"	High side to pin 6 (grid) of 1R5 (V2). Low side to B-.	"	"	"	A3, A4	"
	Perform the following steps with chassis cover in place and chassis mounted in cabinet. Reconnect antenna.						
3.		Loop (Radiated)	1620KC	Tuning gang fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	1400KC	Tune to 1400KC signal.	"	A6, A7	"
5.		"	600KC	Tune to 600KC signal.	"	A8, A9	Adjust for maximum output while rocking tuning gang.

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PARTS LIST AND DESCRIPTIONS

RCA VICTOR
MODEL 7-BX-8J

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	1T4	
V2	Converter	1R5	
V3	IF Amplifier	1T4	
V4	Det-AVC-AF Amp.	1U5	
V5	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲50	150	76659	AFH4-32	DO270	WP405.5	TMQ-31	Q-110	TVL-4410.7
B	■40	150							
C	▲160	25							
D	40	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	400	73553	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C3	82		71514		TCN-82	TN20	TC7-82			
C4	.047	400	73553	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C5	.047	200	73558	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C6	56		71924	N750-SI56	TCN-56	TN16	TC7-56			
C7	.0033	400	73795	BPD-0033	D6-332	CUB6D33	GP-3300	PT6233	6TM-D33	
C8	4		73153							
C9	82		71514		TCN-82	TN20	TC7-82			
C10	.01	200	79316	BPD-01	D6-103	CUB4S1	GP-10000	PT411	4TM-S1	
C11	180		102428		TCN-180	TN28	TC7-180			
C12	.022	200	79925	BPD-02	DF-203	CUB4S22	ED-02	PT4122	2TM-S22	
C13	.01	400	73561	BPD-01	D6-103	CUB4S1	GP-10000	PT411	4TM-S1	
C14	.0022	600	73595	DI-0022	D6-222	CUB6D22	GP-2200	PT6222	6TM-D22	
C15	.0039	400	73796	1464-0039		1R5D39			MS-239	
C16	.047	200	73558	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C17	.047	200	73558	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C18	.047	400	75071	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C19	.1	400	73551	P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C20	.047	200	73558	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	101999	B-70-S	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch			Not Req.	SWE-20	76-2	US-27	Attach to R1A

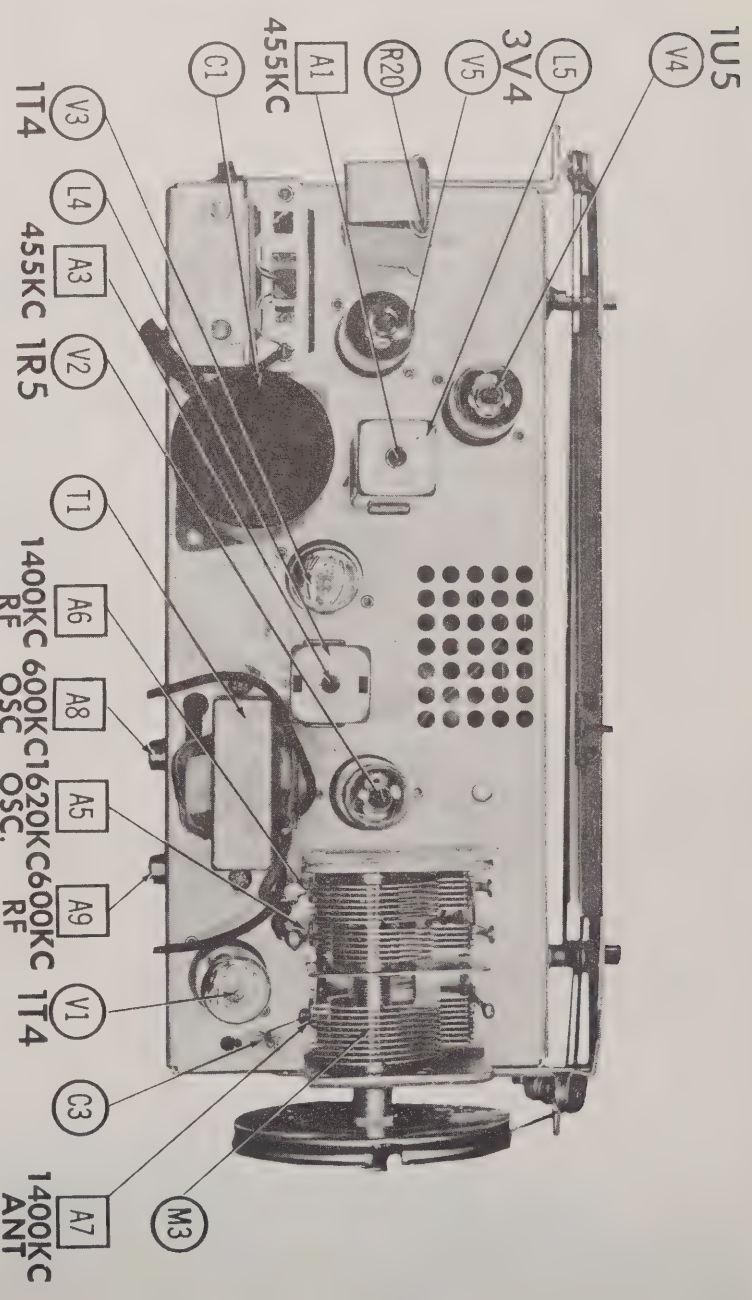
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	IRC PART No.	NOTES
R2	1Meg		502510	BTS-1Meg	
R3	6.8Meg		502568	BTS-6.8Meg	
R4	15K		502315	BTS-15K	
R5	1000Ω		502210	BTS-1000	
R6	100K		502410	BTS-100K	
R7	3.3Meg		502533	BTS-3.3Meg	
R8	5.6Meg		31455	BTS-5.6Meg	
R9	68K		502368	BTS-68K	
R10	10Meg		502610	BTS-10Meg	
R11	220K		502422	BTS-220K	
R12	4.7Meg		30931	BTS-4.7Meg	

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	IRC PART No.	NOTES
R13	27K		502327	BTS-27K	
R14	1Meg		502510	BTS-1Meg	
R15	1800Ω		502218	BTS-1800	
R16	1500Ω		502215	BTS-1500	
R17	2700Ω		502227	BTS-2700	
R18	1800Ω		502218	BTS-1800	
R19	15K		502315	BTS-15K	
R20	2650Ω	7	101915		
R21	3300Ω	1	512233	BTA-3300	
R22	33Ω	1	512033	BTA-33	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	8400Ω	3-4Ω	71047	Z1115	A-2900	A-3879	24S49 ①	S-11X ①	① Drill new mtg. hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	QUAM PART No.	RCA TYPE No.	
SP1	4"	PM	3-4Ω	77055	4A07	223S1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	.7Ω		101934				Model 7-BX-8J (Note 1)
L2	RF Coil	97Ω	6.7Ω*	74992				*Tapped @ 4.4Ω
L3	Osc. Coil	1.2Ω	6.3Ω	73114	14-1077			
L4	Input IF	20Ω	20Ω	73129	16-6758	BC-352	12-C1	
L5	Output IF	13Ω	13Ω	75487	16-6770	BC-355	12-C6	

Note 1: Part #101933 used in model 7-BX-8L.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	RCA Victor PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.048A	77958	1003A	RS075	6S75	5M4	75	

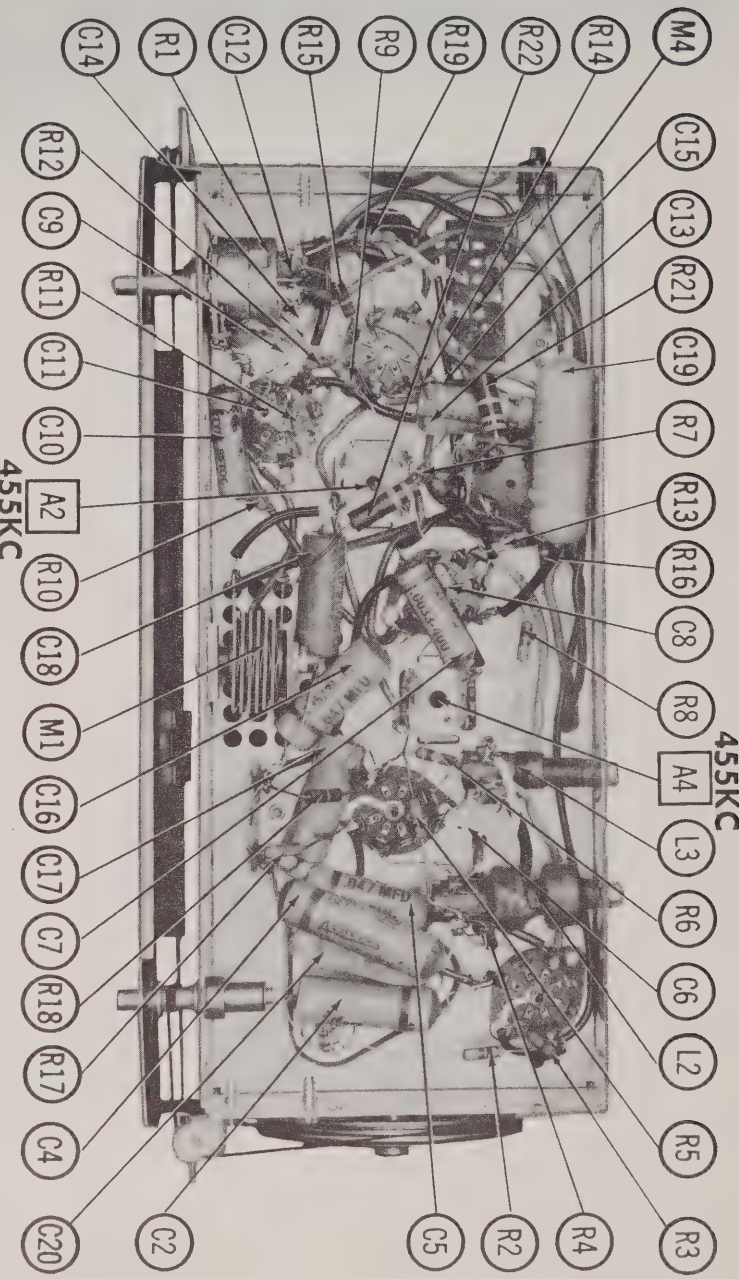
BATTERIES

ITEM No.	VOLTAGE	RCA Victor PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	9V "A" 90V "B"	VS057W			756			T6Z60	

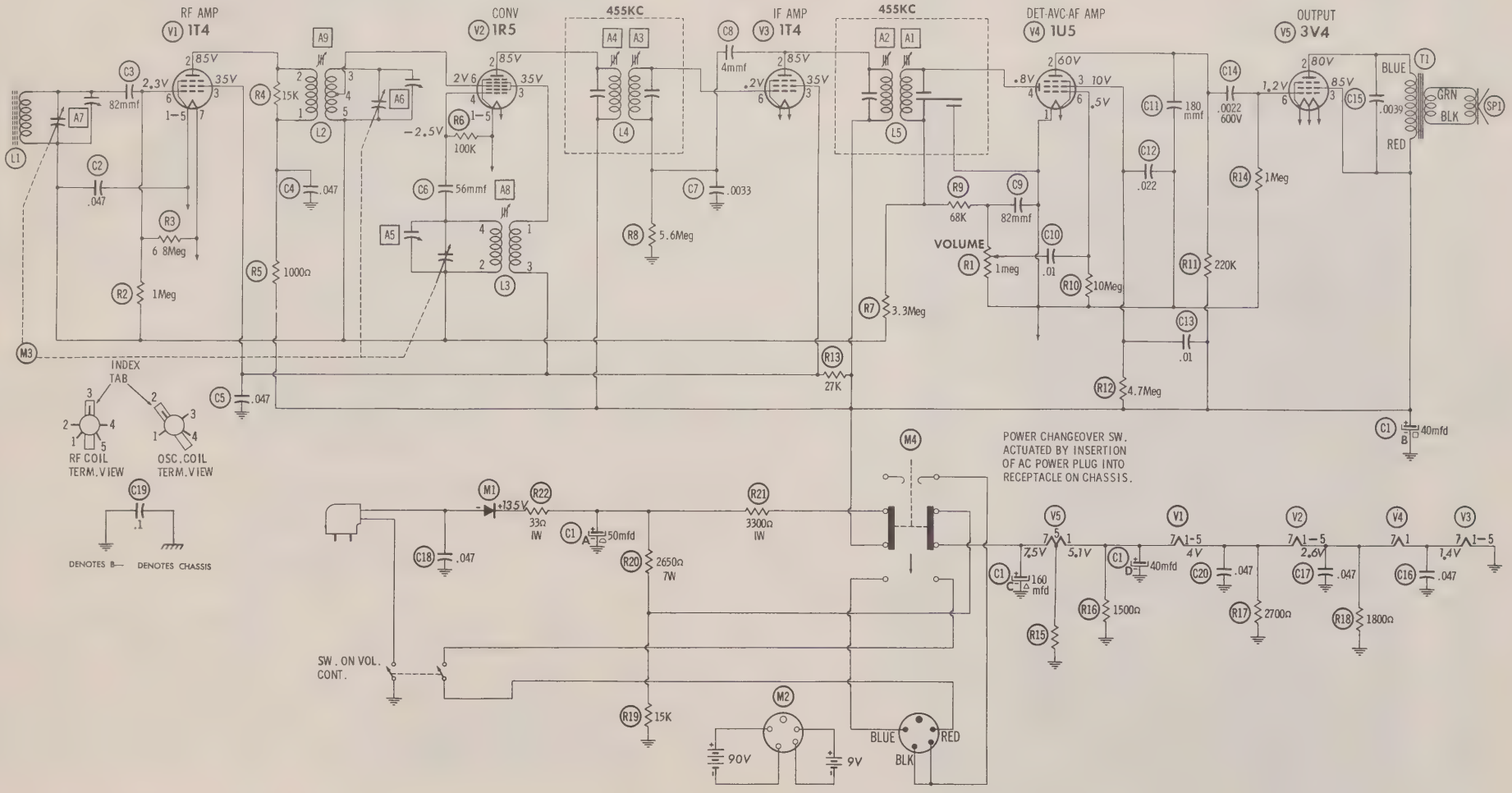
MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Tuning Cap.	101917	3 Gang (17-300MMF, 16-215MMF, 16-110MMF)
M4	Switch	38905	Power Changeover (DPDT) Slide Type
	Case-Back	Y2920	Model 7-BX-8J
	Case-Front Ass'y.	Y2918	Model 7-BX-8J
	Case-Back	Y2921	Model 7-BX-8L
	Case-Front Ass'y.	Y2919	Model 7-BX-8L
	Handle	101929	Model 7-BX-8J
	Handle	101928	Model 7-BX-8L
	Knob	101932	Tuning, Model 7-BX-8J
	Knob	101991	Volume, Model 7-BX-8J
	Knob	101931	Tuning, Model 7-BX-8L
	Knob	101990	Volume, Model 7-BX-8L

CHASSIS—BOTTOM VIEW



RCA VICTOR
MODEL 7-BX-8J



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1T4	•	†4300Ω	†30K	NC	•	3Meg	•
V2	1R5	•	†3300Ω	†30K	100K	•	3Meg	•
V3	1T4	•	†3300Ω	†30K	TP	•	5.6Meg	•
V4	1U5	•	†223K	†5Meg	1Meg	TP	10Meg	•
V5	3V4	•	†4000Ω	†3300Ω	TP	•	1Meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.
TP TIE POINT
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

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RCA VICTOR MODEL 24-T-7272U (Ch. KCS103P)

RCA VICTOR MODELS 21-D-7174, U, 21-D-7175, U, 21-D-7176, U, 21-D-7177, U, 21-D-7215, U, 21-D-7216, U, 21-D-7217, U, 21-D-7235, U, 21-D-7237, U, 24-D-7295, U, 24-D-7296, U, 24-D-7297, U, 24-D-7315, U, 24-D-7317, U, 24-T-7272, U, 24-T-7275, U, 24-T-7277, U (Ch. KCS103A, B, C, D, N, P, R, T)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		21-D-7174, 21-D-7175, 21-D-7176, 21-D-7177	KCS103A
		21-D-7174U, 21-D-7175U, 21-D-7176U, 21-D-7177U	KCS103B
		21-D-7215, 21-D-7216, 21-D-7217, 21-D-7235, 21-D-7237	KCS103C
		21-D-7215 U, 21-D-7216U, 21-D-7217U, 21-D-7235U, 21-D-7237U	KCS103D
		24-T-7272, 24-T-7275, 24-T-7277	KCS103N
		24-T-7272U, 24-T-7275U, 24-T-7277U	KCS103P
		24-D-7295, 24-D-7296, 24-D-7297, 24-D-7315, 24-D-7317	KCS103R
		24-D-7295U, 24-D-7296U, 24-D-7297U, 24-D-7315U, 24-D-7317U	KCS103T

MANUFACTURER	Radio Corporation of America, RCA Victor Television Division, Camden 8, N.J.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.8 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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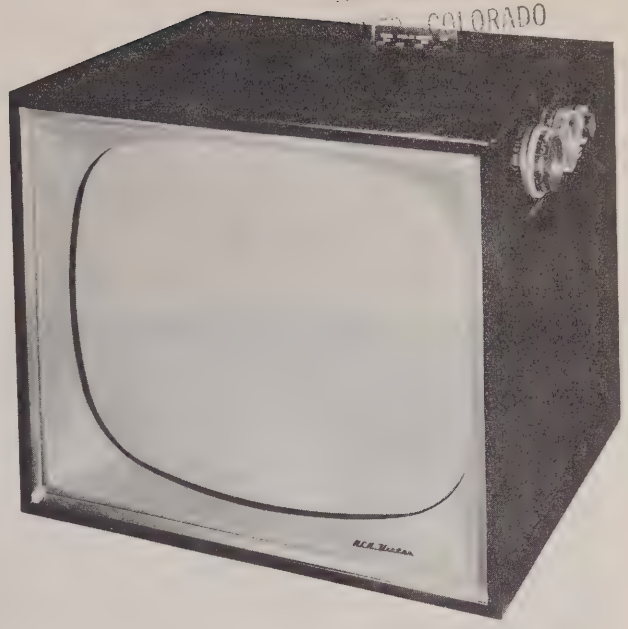

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 10 push-on type control knobs.
2. Remove 5 spring clips. Remove rear cover.
3. Remove 2 metal screws holding volume control bracket. Remove control.
4. Unplug tuner power strip, tuner output cable, yoke plug, picture tube socket, HV lead and 2 speaker plugs.
5. Remove 2 metal screws holding bottom of chassis.
6. Remove 2 hex nuts holding top of chassis.
7. Remove chassis.
8. Remove 4 speaker nuts. Remove speaker.
9. Remove 3 hex nuts. Remove tuner assembly.

MODEL	CHASSIS
24-T-7272U	KCS103P

RCA VICTOR MODELS 21-D-7174, U, 21-D-7175, U, 21-D-7176, U, 21-D-7177, U, 21-D-7215, U, 21-D-7216, U, 21-D-7217, U, 21-D-7235, U, 21-D-7237, U, 24-D-7295, U, 24-D-7296, U, 24-D-7297, U, 24-D-7315, U, 24-D-7317, U, 24-T-7272, U, 24-T-7275, U, 24-T-7277, U (Ch. KCS103A, B, C, D, N, P, R, T)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of VHF tuner oscillator, it is necessary to remove the chassis from the cabinet. (See disassembly instructions).

PICTURE TUBE SAFETY GLASS CLEANING

Pull metal trim along edge of glass outward, clearing retainer, bow toward center of screen. Remove retainer. Repeat for each side. Use extreme caution in removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

SPECIAL ADJUSTMENTS

A. AGC Control
From a counter clockwise position, advance the AGC control (R7) until overloading is noted in the picture, then clockwise until overloading disappears.

B. Noise Limiter Control
From a clockwise position, adjust the Noise Limiter Control until overloading is observed in the picture, then counter clockwise until overloading disappears.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is located on the control panel of the chassis and is used as the horizontal hold control. Adjust the horizontal hold control until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A15) located on wiring side of chassis.

FUSES

One fuse is used for horizontal sweep circuit protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a sliding arm which may be moved up and down or to the right or left until picture is properly centered.

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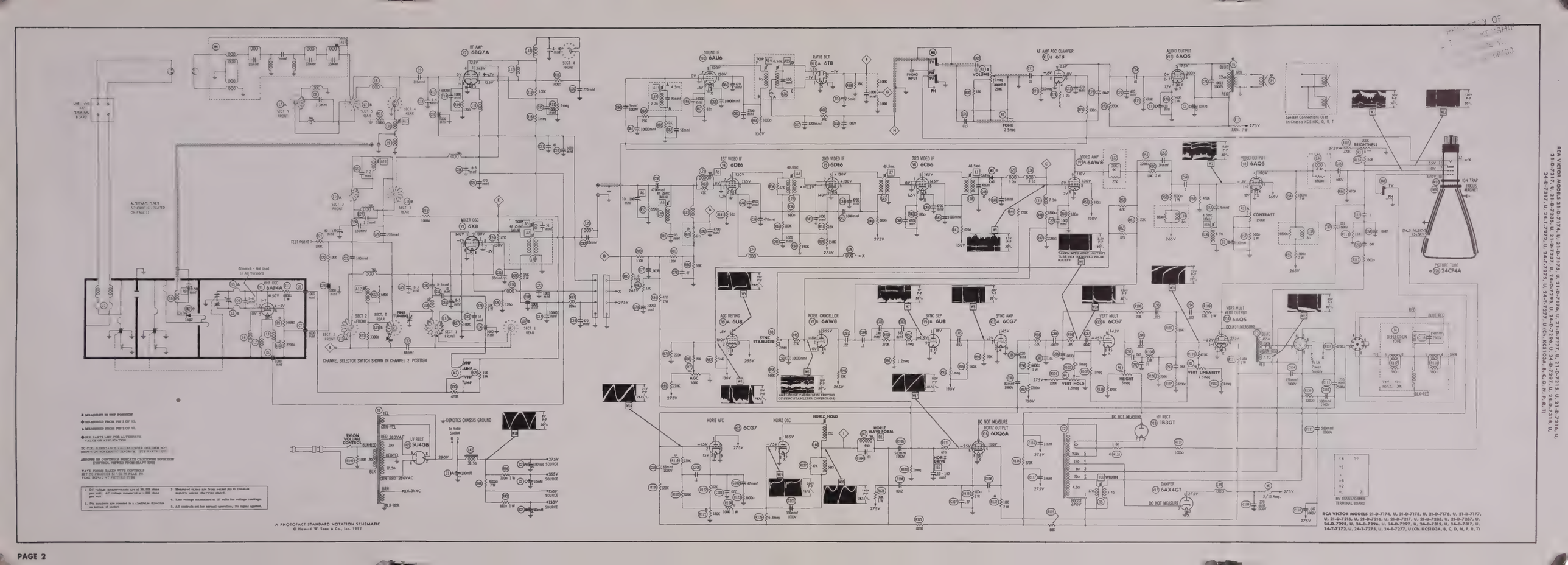
RF AMP V2 6BQ7A
ROUND IF V10 6AU6
RATIO DET V11A 6T8
AF AMP AGC CLAMPER V11B 6T8
AUDIO OUTPUT V12 6AQ5
1ST VIDEO IF V4 6DE6
2ND VIDEO IF V5 6DE6
3RD VIDEO IF V6 6CB6
VIDEO AMP V7A 6AW8
VIDEO OUTPUT V8 6AQ5
MIXER OSC V3 6X8
TOP V1 6AF4A
AGC KEYING V9A 6U8
NOISE CANCELLER V9B 6AW8
SYNC STP V8B 6U8
SYNC AMP V12A 6CG7
VERT MULT V8 6CG7
VERT OUTPUT V9 6AQ5
HORIZ AFC V13 6CG7
HORIZ OSC V14 6BS5
HORIZ WAVE FORM V15
HORIZ OUTPUT V10 6DQ6A
MV RECT V18 1B3GT
DAMPER V17 6AX4GT
PICTURE TUBE 24CP4A
ALTERNATE TUNER SCHEMATIC LOCATED ON PAGE 11
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 2 POSITION
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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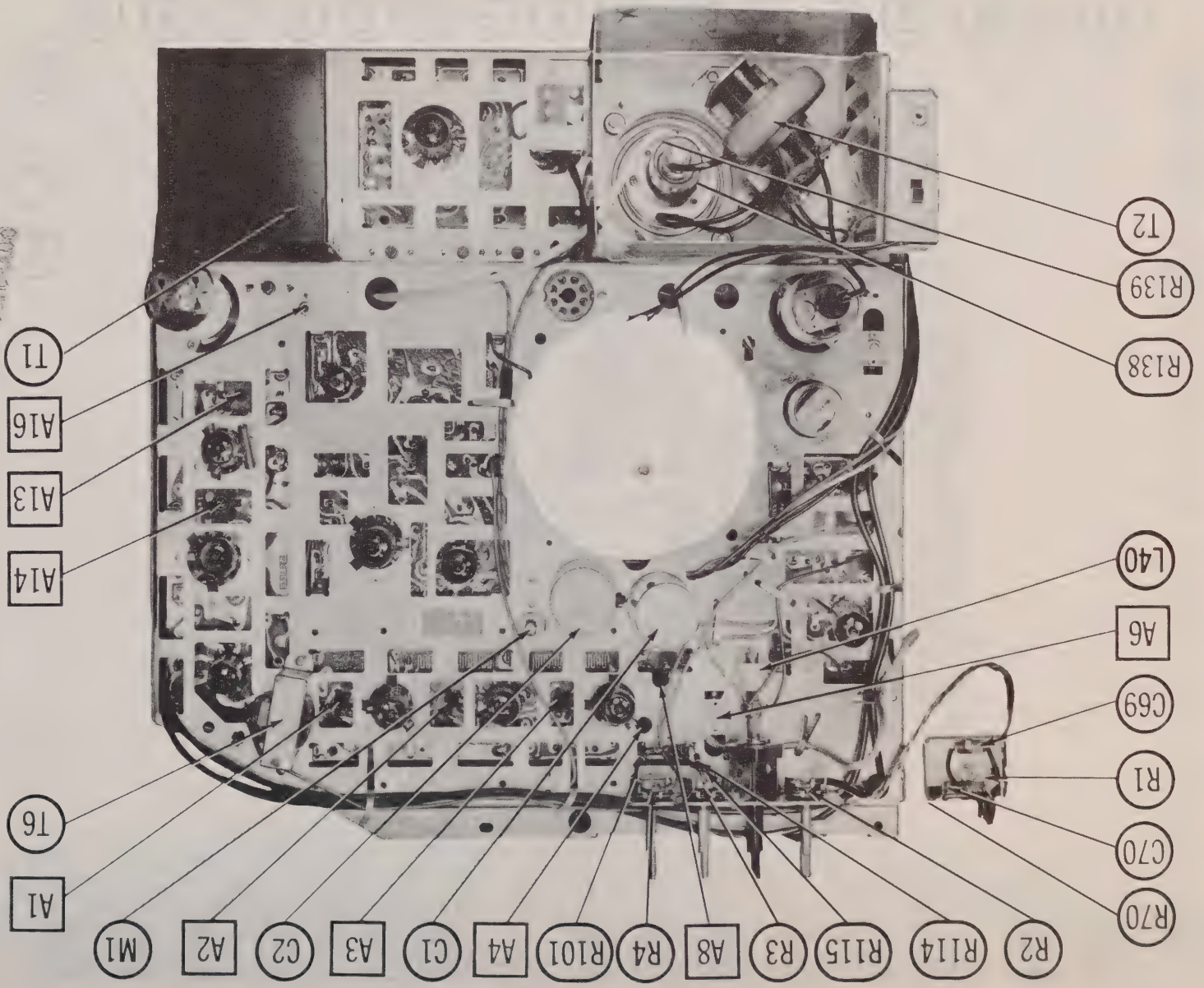
RCA VICTOR MODELS 21-D-7174, U, 21-D-7175, U, 21-D-7176, U, 21-D-7177, U, 21-D-7215, U, 21-D-7216, U, 21-D-7217, U, 21-D-7233, U, 21-D-7237, U, 24-D-7293, U, 24-D-7296, U, 24-D-7297, U, 24-D-7315, U, 24-D-7317, U, 24-T-7372, U, 24-T-7375, U, 24-T-7377, U (Ch. KCS103A, B, C, D, N, P, R, T)

CHASSIS TOP VIEW



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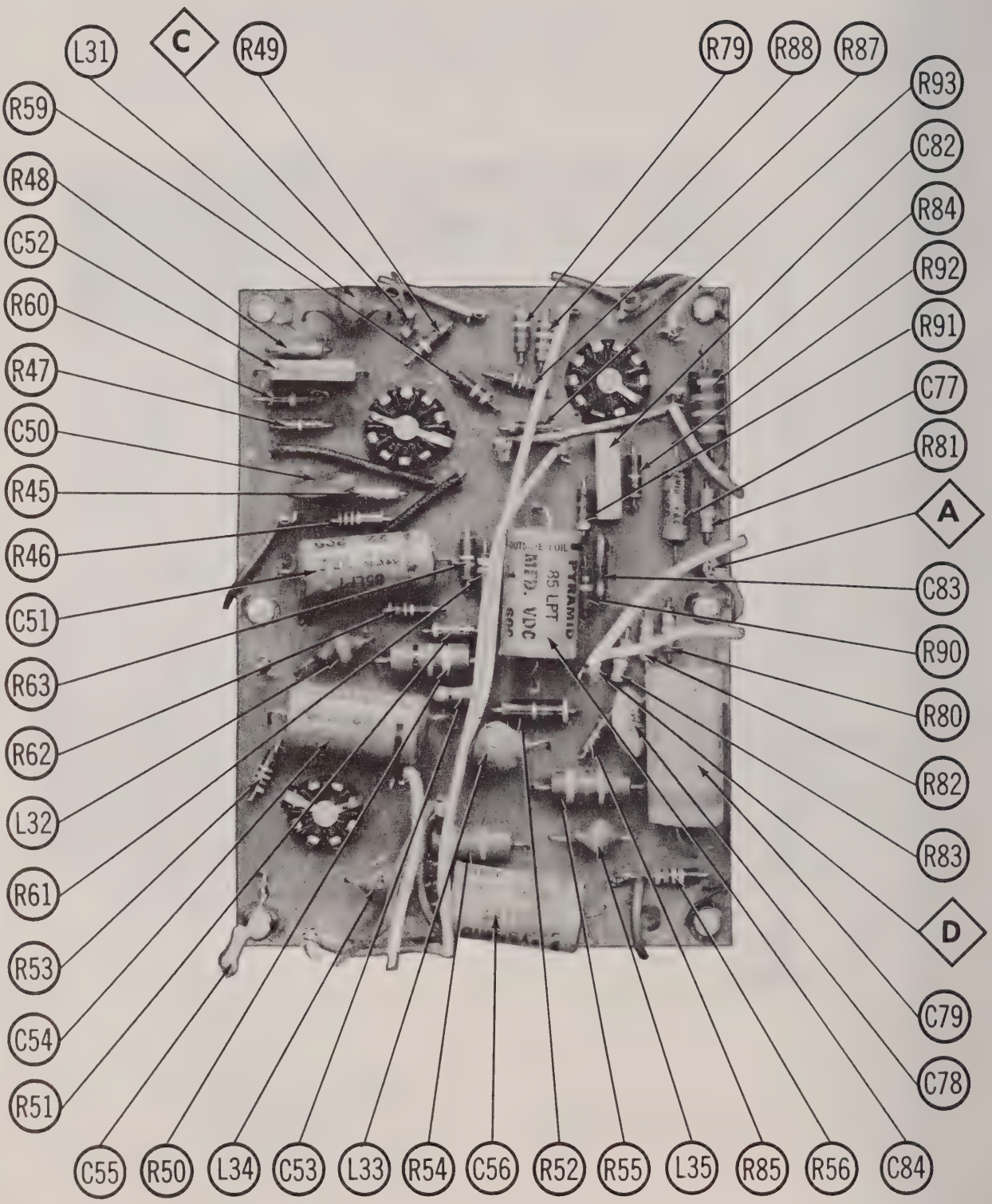
3924 MEADE ST.
DENVER, COLO. 80211



VIDEO OUTPUT & SYNC PRINTED BOARD

TUBE PLACEMENT CHART

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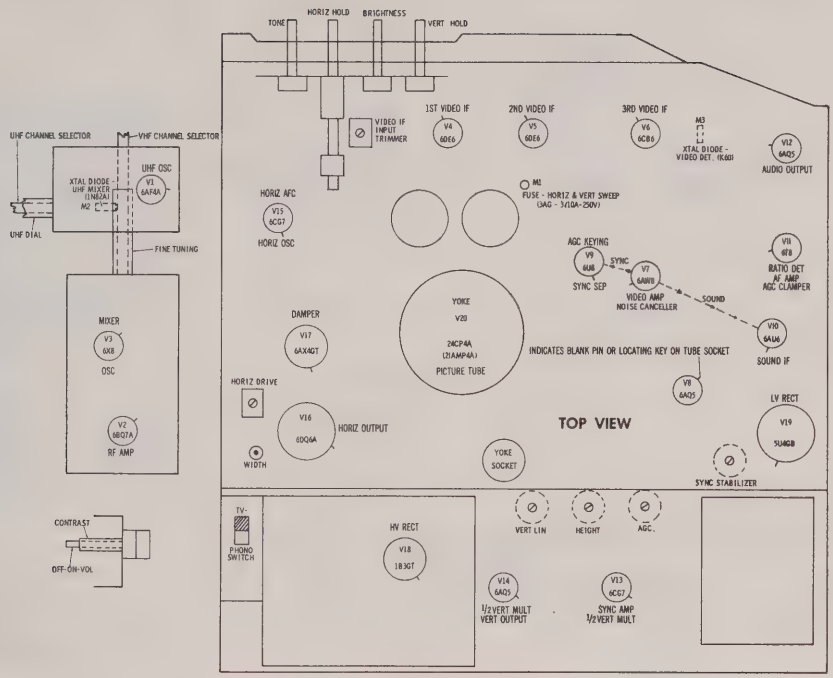


TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V19

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, V6, Diode (M3), V7, V8, V20, V9
No pic, no sound, has snow - V2, V3, V4, (V1 in UHF position)
No pic, has sound, has raster - V7, V8, V20
Has pic, no sound - V10, V11, V12
Overloaded picture - V9

SYNC FAILURE
No vert. sync - V13, V14
No horiz. sync - V15
No vert. or horiz. sync - V7, V9, V13

SWEEP FAILURE
No raster, has sound - V15, V16, V17, V18, Fuse (M1), V20
No vertical deflection - V13, V14
Poor vert. linearity or foldover - V13, V14
Poor horiz. linearity or foldover - V15, V16, V17
Narrow picture - V15, V16, V17, V19
Vert. off freq. - V13, V14
Horiz. off freq. - V15

RCA VICTOR MODELS 21-D-7174, U, 21-D-7175, U, 21-D-7176, U, 21-D-7177, U, 21-D-7215, U, 21-D-7216, U, 21-D-7217, U, 21-D-7235, U, 21-D-7237, U, 24-D-7295, U, 24-D-7296, U, 24-D-7297, U, 24-D-7315, U, 24-D-7317, U, 24-T-7272, U, 24-T-7275, U, 24-T-7277, U (Ch. KCS103A, B, C, D, N, P, R, T)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Two 7.5 volt batteries capable of providing an appreciable current flow will be required for alignment. Connect a 1000 ohm potentiometer across each. Connect the positive lead of one to chassis and the potentiometer to point Ⓐ. Positive to chassis. Adjust potentiometer for 5 volts at point Ⓐ. The second battery is for later use.
Set the sync stabilizer control (R8) fully clockwise.
Set the AGC control (R7) fully clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
During alignment, reduce the signal if necessary to produce -3 volts of DC at point Ⓒ with -5 volts of bias at point Ⓐ.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.0015MFD	High side to point Ⓑ. Low side to tuner chassis.	Not used.	44.5MC	Any unused channel.	USE VTVM DC probe to point Ⓐ. Common to chassis.	A1	Use only enough generator output to provide usable indication on VTVM. Adjust for maximum deflection.
2.	"	"	"	45.5MC	"	"	A2	"
3.	"	"	"	43.0MC	"	"	A3	"
4.	"	"	"	47.25MC	"	"	A4, A5	Increase generator output to maintain -3 volts on VTVM. Adjust for MINIMUM deflection.
5.	"	"	44MC (10MC Swp)	42.5MC 45.75MC	4	Vert. amp. of scope thru detector (Fig. 1) to pin 5 (plate) of V5.	A6, A7, A8	Connect a 180Ω resistor from plate to screen (pin 5 and 6) of the 1st Video IF amplifier (V4) Pre-set A6 (trimmer) to MINIMUM capacity. If a separate marker generator is used, loosely couple to the detector probe in Fig. 1. Attenuate output of generator to provide .5 volts peak to peak on scope. Adjust A7 and A8 for maximum gain with 45.75MC marker at 75% of maximum response as in Fig. 2. Adjust A6 to place 42.5MC marker at 70% on curve as in Fig. 2. Disconnect the 180Ω resistor. Remove scope and detector from V4.
6.	"	"	"	42.5MC 45.0MC 47.75MC	4	Vert. amp. to point Ⓒ. Low side to chassis.	A1, A2, A3	Adjust sweep generator output to provide 5 volts peak to peak on scope. If a separate signal generator is used for a marker, couple it loosely to the grid of the 1st Video IF amp. (V4). Retouch A1, A2 and A3 if necessary to obtain response curve similar to Fig. 3.

NOTE: The remainder of the "Video IF Alignment" differs with tuner. See proper alignment below.

TUNER #KRK29R

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.0015MFD	High side to point Ⓑ. Low side to tuner chassis.	44MC (10MC Swp)	41.25MC	4	Vert. amp. to point Ⓒ. Low side to chassis.	A1, A3	Increase sweep generator output ten times and notice attenuation at 41.25MC. Adjust A1 and A3 to set 41.25MC marker at approximately 5%.
8.	.0015MFD and 1000Ω	Using shortest leads possible, connect high side to front terminal of 1N82 crystal holder through .0015MFD and 1000Ω in series. Low side to chassis.	"	41.25MC 45.75MC	Between 68 and 69.	Connect a 220Ω composition resistor in series with a .0015MFD capacitor between pin 1 (plate) of 6BQ7 (V3) and ground with the resistor next to ground. Pin 1 of V3 is accessible through a hole in the left side of the tuner. Connect the vertical amp. of the scope through detector probe (Fig. 1) to the junction of the resistor and capacitor. Low side to chassis.	A9, A10	Connect the potentiometer arm of the second bias battery to point Ⓓ. Connect positive to chassis. Adjust this battery to provide -3 volts of bias at point Ⓓ. Set the sweep generator to produce .5 volts or less peak to peak on the oscilloscope. Adjust A9 and A10 for maximum gain with markers positioned as shown in Fig. 4
9.	"	"	"	"	"	Connect detector probe (Fig. 1) to point Ⓔ. Low side to chassis.	A11, A12	Adjust for response similar to Fig. 4
10.	Two 130Ω carbon resistors	Across VHF antenna terminals with 130Ω in each lead.	"	"	"	Remove resistor and capacitor (Step 8). Vert. amp. thru 10K to point Ⓒ. Low side to chassis.	A1, A2	Adjust sweep generator output to provide 3 volts peak to peak on scope. Set AGC bias at -3 volts and the IF bias at 5 volts. If separate marker generator is used for a marker, loosely couple to grid circuit of V4. Switch through all VHF channels and check for proper curve shape as in Fig. 3. Retouch A1 and A2 if necessary to obtain proper tilt.

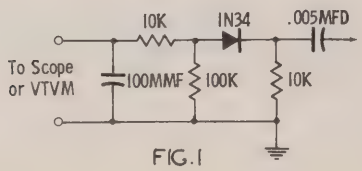


FIG. 1

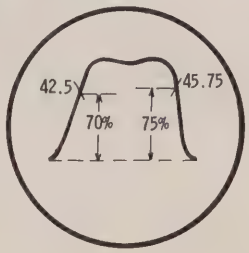


FIG. 2

ALIGNMENT INSTRUCTIONS (cont)

PROPERTY OF

TUNER #KRK22L

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.0015MFD	High side to point (B). Low side to tuner chassis.	Not used.	41.25MC	4	Vert. amp. to point (C). Low side to chassis.	A1, A3	Increase sweep generator output ten times and notice attenuation at 41.25MC. Adjust A1 and A3 to set 41.25MC marker at approximately 30 times down with response curve as shown in Fig. 3.
8.	Two 130Ω carbon resistors	Across VHF antenna terminals with 130Ω in each lead.	"	"	"	Vert. amp. thru 10K to point (C). Low side to chassis.	A1, A2	Adjust sweep generator output to provide 3 volts peak to peak on scope. Set AGC bias at -3 volts and the IF bias at -5 volts. If separate signal generator is used for a marker, loosely couple to grid circuit of V4. Switch through all VHF channels and check for proper curve shape as in Fig. 3. Retouch A1 and A2 if necessary to obtain proper tilt.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (F) to chassis. The junction of these two resistors is alignment point (G) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	.01MFD	High side to pin 7 (grid) of 6AW8 (V7). Low side to chassis.	4.5MC (unmod)	Any unused channel.	DC probe to point (F). Common to chassis.	A14	Adjust for maximum deflection. The output of the signal generator should be at such a level as to produce a reading of 10 to 12 volts on VTVM at point (F) when finally peaked.
12.	"	"	"	"	DC probe to point (H). Common to point (G).	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 11 and 12.
13.	"	High side to point (C). Low side to chassis.	"	"	DC probe to point (F). Common to chassis.	A13	Adjust for maximum deflection. The output of the signal generator should be such a level as to produce a reading of 10 to 12 volts on VTVM at point (F) when finally peaked. Remove test equipment and 100K resistors.

4.5MC TRAP ALIGNMENT

Ground pin 1 (grid) of third video IF amplifier (V6).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
14.	.01MFD	High side to pin 7 (grid) of 6AW8 (V7). Low side to chassis.	4.5MC (unmod)	Any unused channel.	DC probe thru detector probe (Fig. 1) to pin 2 (grid) of picture tube. Common to chassis.	A16	Adjust A16 for MINIMUM deflection. Remove ground from pin 1 of V6. Tune in a TV station. Set contrast and brightness for normal picture. Rotate fine tuning control over its range. If 4.5MC beat is noted in picture, retouch A16 for MINIMUM 4.5MC beat.

FM TRAP ADJUSTMENT

Tune in a local TV station in which interference is noted. Adjust A17 for MINIMUM interference in picture.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

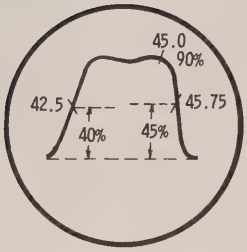


FIG. 3

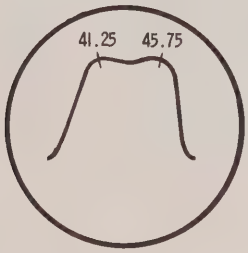


FIG. 4

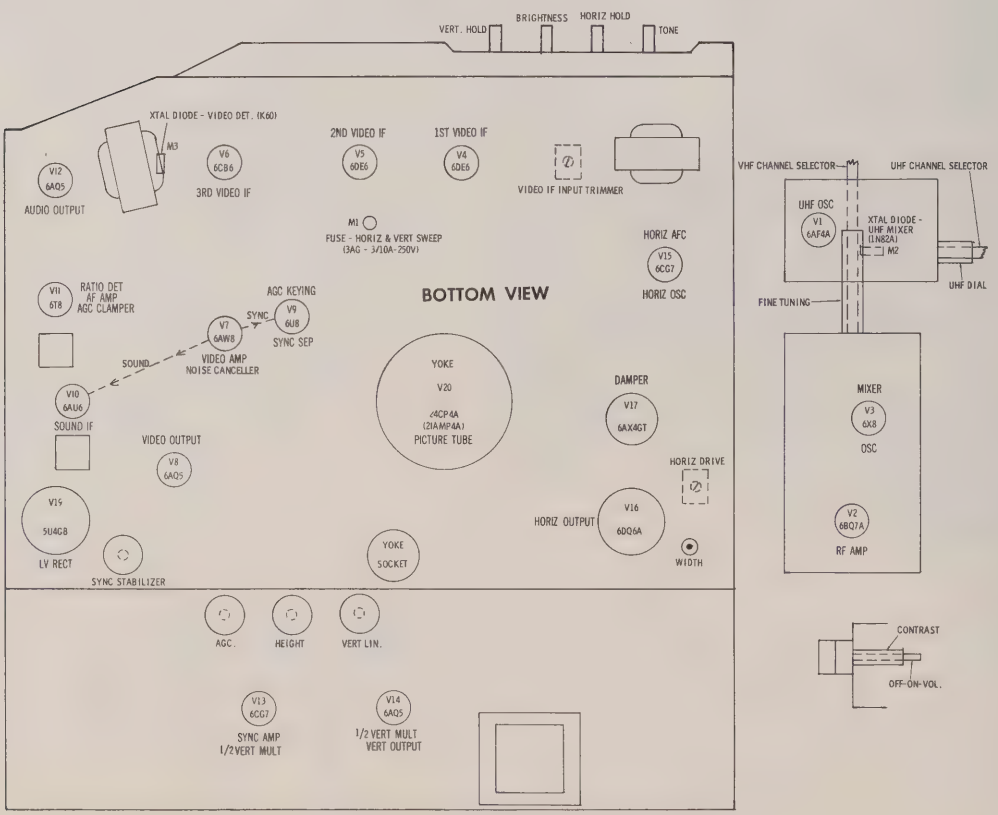
RCA VICTOR MODELS 21-D-7174, U, 21-D-7175, U, 21-D-7176, U, 21-D-7177, U, 21-D-7215, U, 21-D-7216, U, 21-D-7217, U, 21-D-7235, U, 21-D-7237, U, 24-D-7295, U, 24-D-7296, U, 24-D-7297, U, 24-D-7315, U, 24-D-7317, U, 24-T-7272, U, 24-T-7275, U, 24-T-7277, U (Ch. KCS103A, B, C, D, N, P, R, T)

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4A	*† 22K	8000Ω	0Ω	.1Ω	.1Ω	8000Ω	*† 22K		
V2	6BQ7A	† 1800Ω	† 450K	† 550K	0Ω	.1Ω	† 550K	240K	120Ω	0Ω
V3	6X8	0Ω	100K	† 13K	.1Ω	0Ω	0 Ω	113K	† 16K	† 16K
V4	6DE6	50K	56Ω	0Ω	.1Ω	† 70K	† 70K	0Ω		
V5	6DE6	† 70K	† 70K	0Ω	.1Ω	† 710Ω	† 710Ω	70K		
V6	6CB6	.1Ω	180Ω	0Ω	.1Ω	† 4300Ω	† 4300Ω	0Ω		
V7	6AW8	2200Ω	570K	† 33K	.1Ω	0Ω	180Ω	4000Ω	† 5000Ω	† 10K
V8	6AQ5	470K	• 800Ω	0Ω	.1Ω	† 3900Ω	† 308Ω	470K		
V9	6U8	† 1Meg	• 20K	† 308Ω	0Ω	.1Ω	190K	† 5000Ω	0Ω	2.2Meg
V10	6AU6	47K	0Ω	0Ω	.1Ω	† 600Ω	† 6000Ω	82Ω		
V11	6T8	INF	33K	INF	1.1Ω	0Ω	240K	0Ω	10Meg	† 330K
V12	6AQ5	470K	560Ω	.1Ω	0Ω	† 3640Ω	† 3340Ω	470K		
V13	6CG7	† 14K	33K	0Ω	0Ω	.1Ω	• ‡ 1.3Meg	• 2Meg	0Ω	0Ω
V14	6AQ5	• 1.5Meg	0Ω	.1Ω	0Ω	† 500Ω	† 188Ω	•1.5Meg		
V15	6CG7	† 39Ω	1.3Meg	250K	0Ω	.1Ω	† 40K	250K	0Ω	
V16	6DQ6A	NC	0Ω	NC	† 10K	1Meg	NC	..1Ω	100Ω	TOP CAP ‡ 19Ω
V17	6AX4GT	NC	NC	INF	NC	† 39Ω	NC	.1Ω	0Ω	
V18	IB3GT	PINS I THRU 8 HAVE INF RESISTANCE								TOP CAP ‡ 377Ω
V19	5U4GB	NC	45K	NC	27Ω	NC	30Ω	NC	45K	
V20	24CP4A	0Ω	470K	PIN 10 ‡ 338K	PIN 11 † 200K	PIN 12 .1Ω				

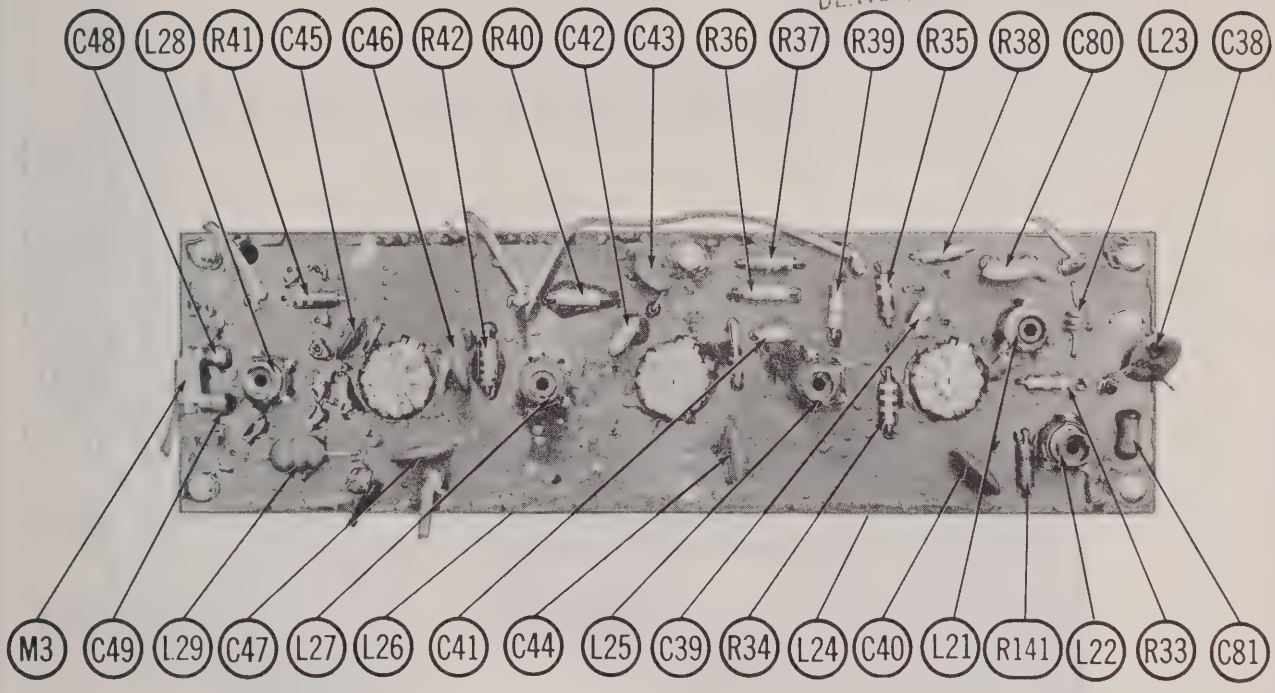
† MEASURED FROM PIN 2 OF V19.
• MEASURED IN UHF POSITION
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

‡ MEASURED FROM PIN 3 OF V17.
TP TIE POINT
NC NO CONNECTION.

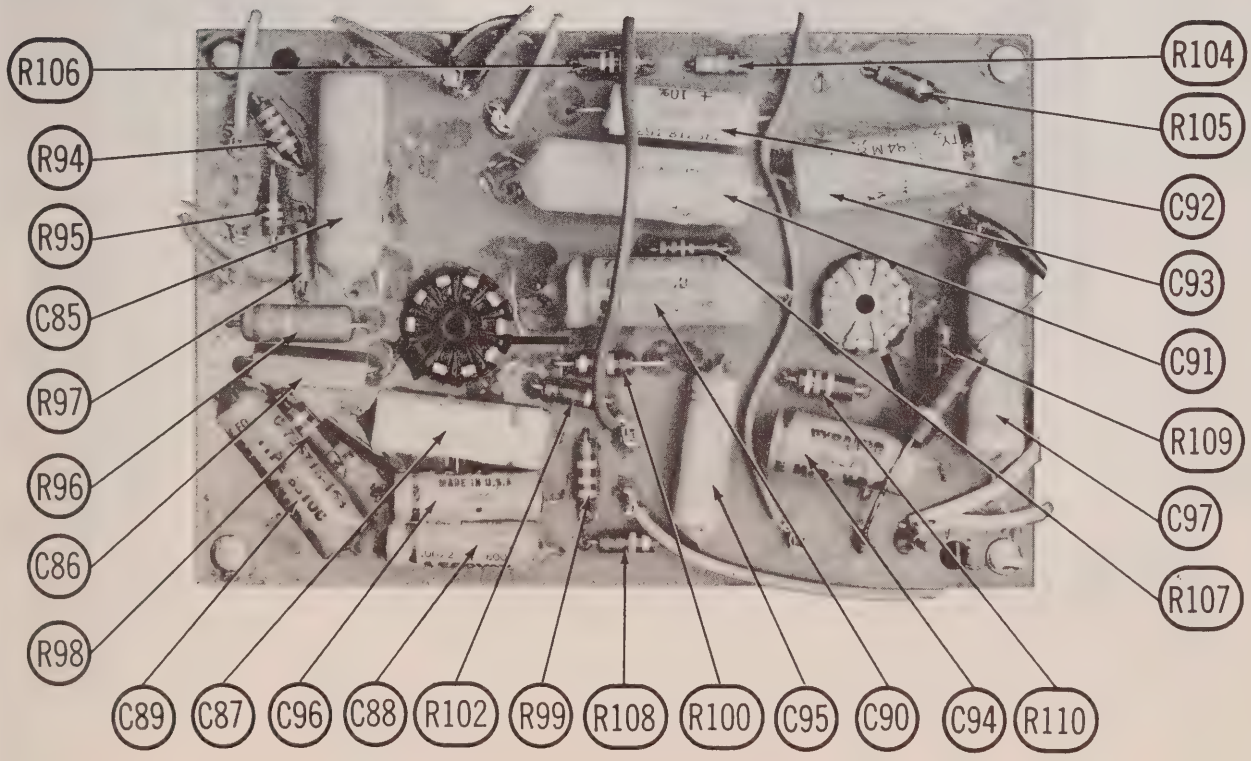


TUBE PLACEMENT CHART

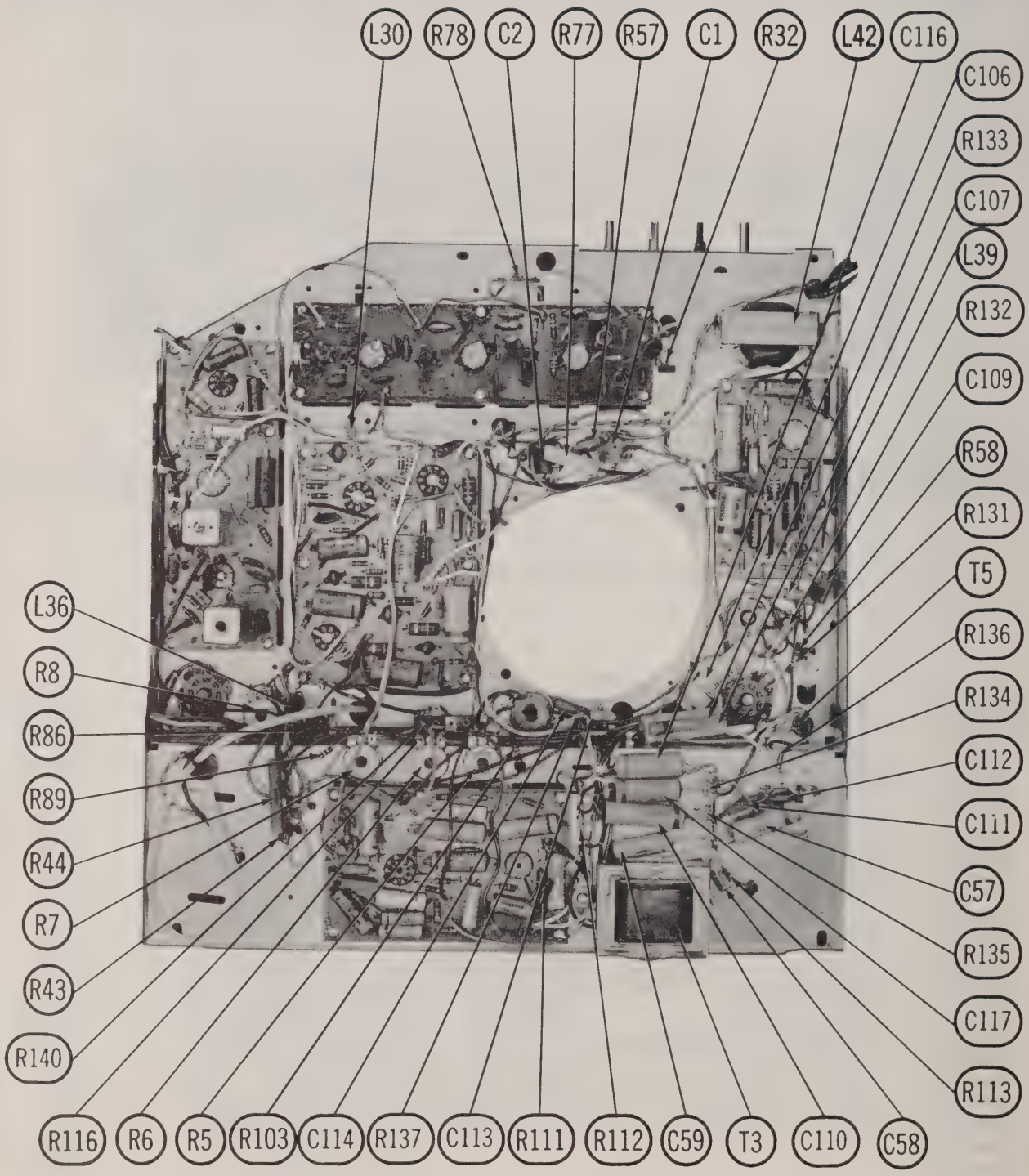
PROPERTY OF
L. F. BLANKENSHIP
DENVER, COLORADO



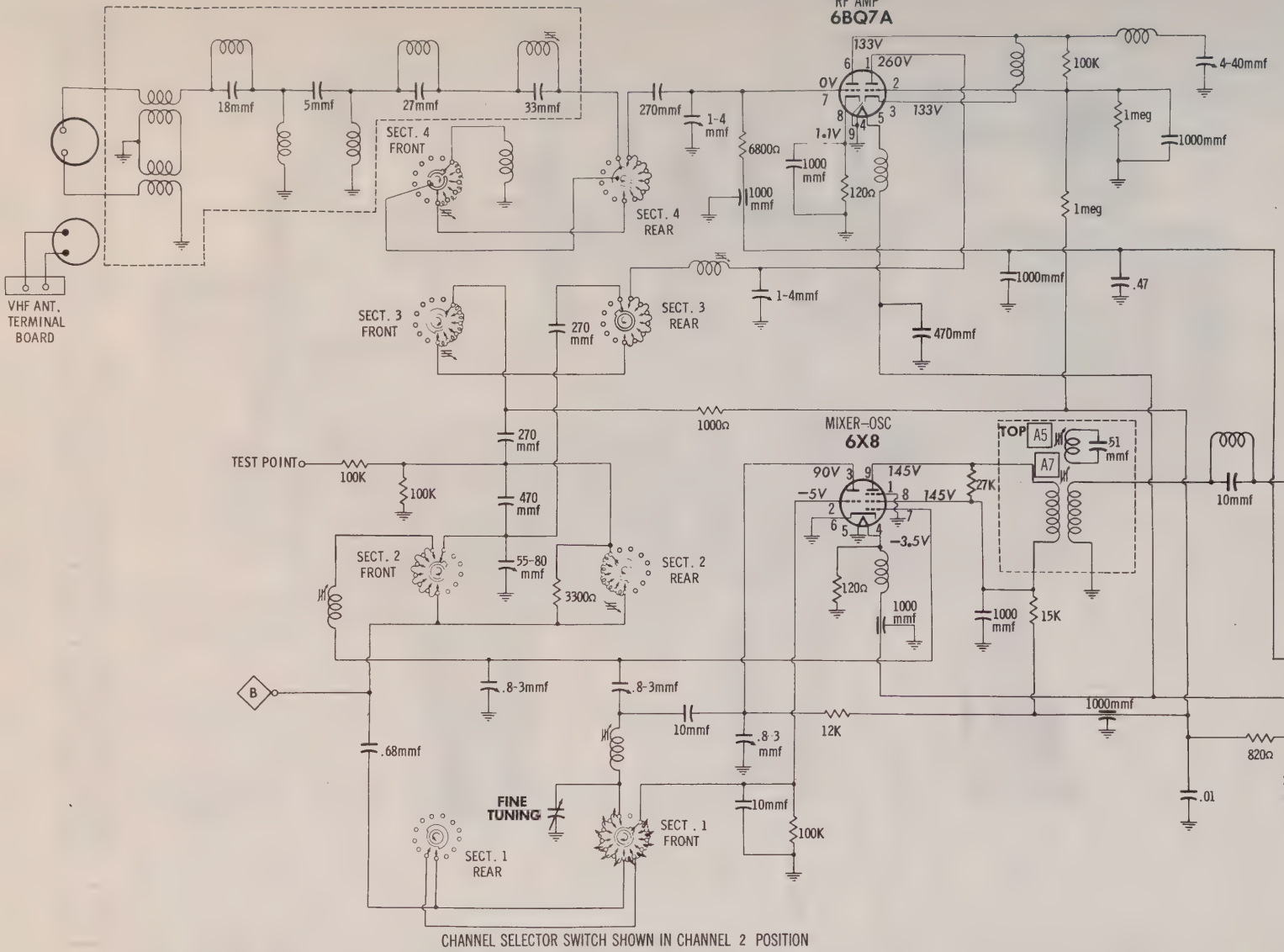
VIDEO IF STRIP PRINTED BOARD



SYNC OUTPUT VERTICAL CIRCUIT PRINTED BOARD



CHASSIS-BOTTOM VIEW



CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 2 POSITION

VHF Tuner KRK-22L Used With Chassis KCS103A, C, N, and R.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALTERNATE VHF TUNER SCHEMATIC

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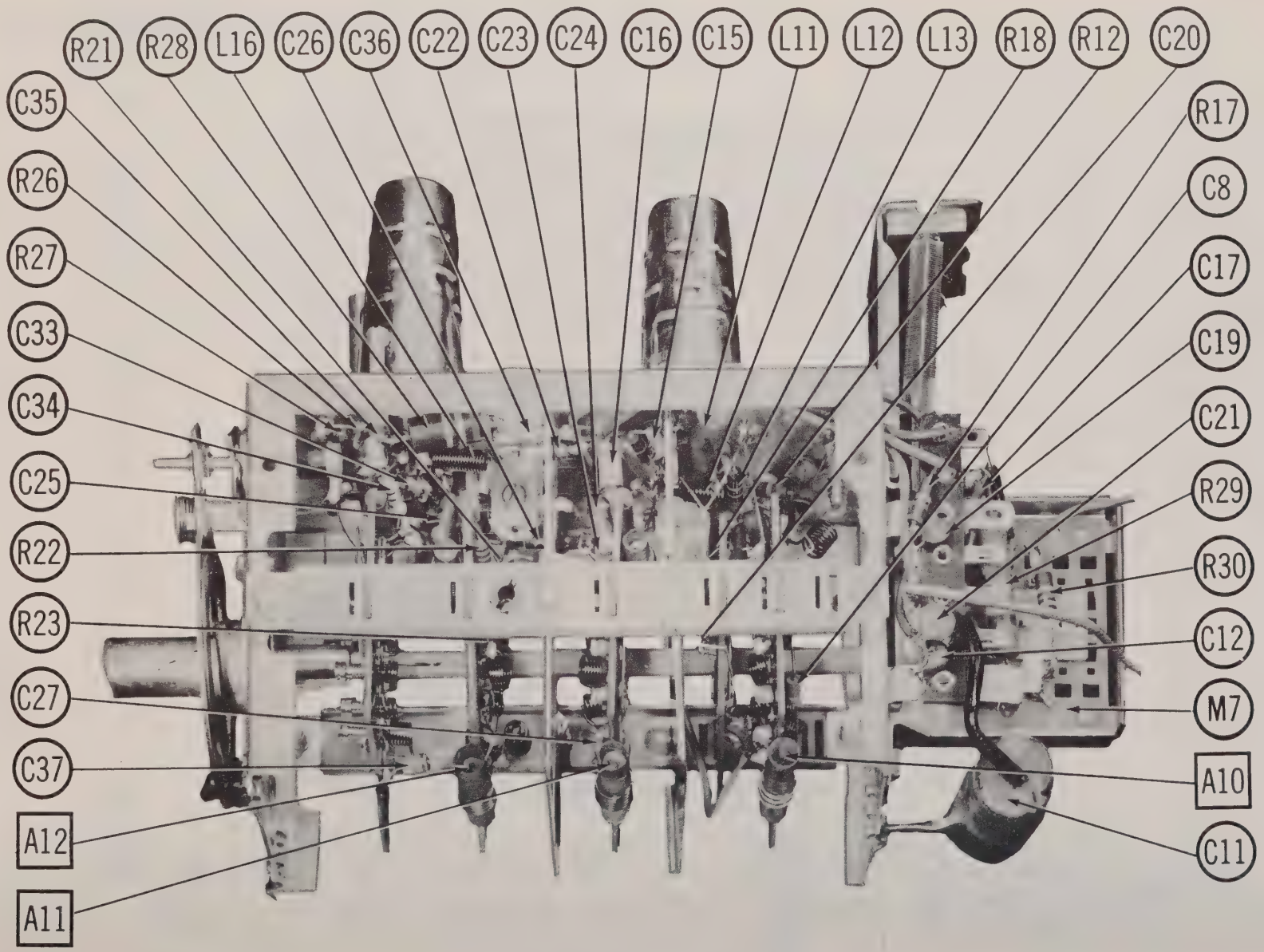
T. BLANKENSHIP
RM. 1 ROSE ST.
DENVER, COLORADO



RF TUNER-RIGHT SIDE

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Oscillator	6AF4A	
V2	RF Amplifier	6BQ7A	
V3	Mixer-Oscillator	6X8	
V4	1st. Video IF Amplifier	6DE6	
V5	2nd. Video IF Amplifier	6DE6	
V6	3rd. Video IF Amplifier	6CB6	
V7	Noise Canceller-Video Amplifier	6AW8	
V8	Video Output	6AQ5	
V9	AGC Keying-Sync Separator	6U8	
V10	Sound IF Amplifier	6AU6	

ITEM No.	USE	TYPE	NOTES
V11	Ratio Det.-AGC Clamper AF Amplifier	6T8	
V12	Audio Output	6AQ5	
V13	Sync Amplifier-Vert. Mult.	6CG7	
V14	Vert. Mult. -Vert. Output	6AQ5	
V15	Horiz. AFC-Horiz. Osc.	6CG7	
V16	Horiz. Output	6DQ6A	
V17	Damper	6AX4GT	
V18	HV Rectifier	1B3GT	
V19	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	RCA Victor PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V20	24CP4A	24CP4A/ 24TP4	24CP4A ①	24CP4A ②	① Aluminized ② Silver screen "85"
			24CP4	24CP4	
	21AMP4A	21AMP4A ①	21AMP4A/ 21ACP4A	21AMP4A ② 21ACP4A ②	
		21AMP4	21AMP4/ 21ACP4	21AMP4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲100	400	100858	AFHS4-57-90	CO894 BR3015	FP420.7		Q-020 CSD-500	TVL-4663.5
B	▲30	50							
C	■10	400							
D	20	50							
C2A	▲100	400	102778	AFH3-123-90	CO896	FP333.85	TMT-187	Q-020 MT-4580	TVL-3689.3
B	▲80	350							
C	■10	400							
C3	5	50	78943	SRE50V5	BBR5-50	TC30	TD-5-50	MMT-0505	TVA-1303

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	1-4				829-4		3115-E	CT-551		
C5	1000		79559	EF-001	MFT-1000				503C-D1	
C6	1000		79559	EF-001	MFT-1000				503C-D1	
C7	1000		79559	EF-001	MFT-1000				503C-D1	
C8	3.3		71503	NP0-SI 3.3	TCZ-3R3	Z008	TCO-3.3	ZT-5533	5TCCB-V33	
C9	270		77838	SI 270	D6-271	G054	ED-270	UC-5327	5GA-T27	
C10	1000		77084	EF-001	MFT-1000				503C-D1	
C11	.47	200	101808	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C12	1000		77252	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C13	1-4		76532		829-4		3115-E	CT551		
C14	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C15	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C16	.8-3		77151		829-3		3115-D	CT565A		
C17	10000		73960	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C18	1000		77084	EF-001	MFT-1000				503C-D1	
C19	470		77293	BPD-00047	DD-471	K060	ED-470	UC-5347	5GA-T47	
C20	270		77838	SI 270	D6-271	G054	ED-270	UC5327	5GA-T27	
C21	470		77293	BPD-00047	DD-471	BYA10T47	ED-470	UC-5327	5GA-T47	
C22	1000		77084	EF-001	MFT-1000				503C-D1	
C23	2.2		71502	NP0-SI2.2	TCZ-2R2	Z006	TCO-2.2		5TCCB-V22	
C24	150		78276	SI 150	D6-151	G046	ED-150	UC-5315	5GA-T15	
C25	100			SI 100	D6-101	G042	ED-100	UC-531	5GA-T1	
C26	270		77838	SI 270	D6-271	G054	ED-270	UC-5327	5GA-T27	
C27	2.2		71502	NP0-SI 2.2	TCZ-2R2	Z006	TCO-2.2		5TCCB-V22	
C28	1000		77084	EF-001	MFT-1000				503C-D1	
C29	.8-3		77151		829-3		3115-E	CT565A		
C30	.8-3		77913		829-3		3115-E	CT565A		
C31	82		78603	SI 82	D6-820	G040	ED-82		5GA-Q82	
C32	10			SI 10	D6-100	G018	ED-10	UC-541	5GA-Q1	
C33	10		78247	SI 10	D6-100	G018	ED-10	UC-541	5GA-Q1	
C34	10		77865	SI 10	D6-100	G018	ED-10	UC-541	5GA-Q1	
C35	.8-3		77151		829-3		3115-E	CT565A		
C36	1000		77084	EF-001	MFT-1000				503C-D1	
C37	.68		71504		TCZ-R68		TZ02	TCO-.68		
C38	4700		73473	BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C39	470		78622	BPD-00047	DD-471	G060	ED-470	UC-5347	5GA-T47	
C40	4700		73473	BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C41	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C42	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C43	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C44	4700		73473	BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C45	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C46	4700		73473	BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C47	4700		73473	BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C48	4									Note 1
C49	5			NP0-SI 5	TCZ-4R7		TCO5	ZT-555		Note 2
C50	10000		73960	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C51	.22	200	79740	P288N-22		CUB2P22		GEM-2022	2TM-P22	
C52	1000		102416		DD-102	K069	ED-1000	DC521	MS-21	
C53	39									
C54	.1	600	79149	P688N-1	DF-104	CUB6P1	ED-01	GEM-601	6TM-P1	
C55	9		102516							
C56	.1	600	79149	P688N-1	DF-104	CUB6P1	ED-01	GEM-601	6TM-P1	
C57	.1	400	73551	P488N-1	DF-104	CUB4P1	ED-01	GEM-601	4TM-P1	
C58	.0047	400	79017	BPD-0047	DD-472	CUB4D47	ED-0047	GEM-4247	4TM-D47	
C59	.047	400	73553	BPD-05	DD-471	CUB4S47		GEM-4147	4TM-S47	
C60	3	1000	102415							
C61	10000		73960	BPD-01	DD-103	K082	ED-01	DC521	5H-S1	
C62	56		102207							

RCA VICTOR MODELS 21-D-7174, U, 21-D-7175, U, 21-D-7176, U, 21-D-7177, U, 21-D-7215, U, 21-D-7216, U, 21-D-7217, U, 21-D-7235, U, 21-D-7237, U, 24-D-7295, U, 24-D-7296, U, 24-D-7297, U, 24-D-7315, U, 24-D-7317, U, 24-T-7272, U, 24-T-7275, U, 24-T-7277, U (Ch. KCS103A, B, C, D, N, P, R, T)

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	RCA Victor PART No.	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C83	2700			BPD-0035	DD-303	ED75	ED-0027	UC-5327	SGA-D37	
C84	470		78632	DI-00470	DD-471	CG60	ED-470	UC-5347	SGA-T47	
C85	10000		79960	BPD-01	DD-103	KH82	ED-01	DC511	5HK-S1	
C86	10000			BPD-01	DD-103	KH82	ED-01	DC511	5HK-S1	
C87	1300		10333322	BPD-001	D6-123	CG70	ED-0012	UC 5312	SGA-D12	
C88	0027	400	102640	BPD-0035	D6-272	CUB4D27	ED-0027	GEM-4227	4TM-D27	
C89	01	300	102000	BPD-01	DD-103	CUB3D1	ED-01	GEM-201	3TM-P1	
C90	015	300	77943	BPD-015	DD-152	CUB2S15	ED-015	GEM-215	2TM-S15	
C91	01	200	102640	BPD-01	DD-103	CUB2D1	ED-01	GEM-201	2TM-D1	
C92	470		78632	BPD-0047	DD-471	CG60	ED-470	UC-5347	SGA-T47	
C93	470		77943	BPD-0047	DD-471	CG60	ED-470	UC-5347	SGA-T47	
C94	.01	400	101230	BPD-01	DD-103	CUB4S1	ED-01	GEM-401	4TM-S1	
C95	0047	400	78930	BPD-0047	DD-473	CUB4D47	ED-0047	GEM-4247	4TM-D47	
C96	0068	1000	78732	BPD-0068	DD30-183	CUB1KD68		GEM-4168	1TM-D68	
C97	.0039	400	103218	BPD-004	D6-402	CUB4D39	ED-004	GEM-4339	4TM-D39	
C98	1000		78900	BPD-01	DD-102	KH83	ED-01	DC511	5HK-S1	
C99	47	300	100399	P388N-47		CUB2P47		GEM-3047	2TM-P47	
C100	4700		78473	BPD-0047	DD-472	ED79	ED-0047	UC-5347	SGA-D47	
C81	18			MPD-01.8	TC5-18	TC5-18			TC5C-4S8	
C82	330	500	103560	1468-00033	DD-331	G066	ED-330	UC-5333	MS-333	
C83	330	500	103560	1468-00033	DD-331	G066	ED-330	UC-5333	MS-333	
C84	.5	600	78149	P688N-1	DF-104	CUB5P1		GEM-601	5TM-P1	
C85	.033	400	73553	BPD-03	DF-303	CUB4S33		GEM-4333	4TM-S33	
C86	330		39634	1468-00022		G05	ED-330	UC-5322	MS-322	
C87	0047	500	73920	BPD-0047	DD-472	CUB4D47	ED-0047	GEM-4547	5TM-D47	
C88	0033	600	73595	BPD-033	DD-223	CUB5D33	ED-0033	GEM-4533	5TM-D33	
C89	01	400	73581	BPD-01	DD-103	CUB4S1	ED-01	GEM-401	4TM-S1	
C90	012	600	77581	BPD-03	DF-203	CUB5S12	ED-012	GEM-4512	5TM-S12	
C91	047	400	73553	BPD-05	DF-503	CUB4S47		GEM-4547	4TM-S47	
C92	01	400	73581	BPD-01	DD-103	CUB4S1	ED-01	GEM-401	4TM-S1	
C93	.068	300	78988	BPD-068	DF-693	CUB3S68		GEM-3168	3TM-S68	
C94	.027	600	100303	BPD-03	DF-303	CUB6S27		GEM-6327	6TM-S27	
C95	.033	600	78830	BPD-05	DF-503	CUB6S33	ED-033	GEM-6333	6TM-S33	
C96	.0033	600	79325	BPD-003	DF-332	CUB4D33	ED-0033	GEM-4333	4TM-D33	
C97	.001	1000	73849	P688N-001	DD00-103	CUB1KD1		GEM-1S10	1TM-D1K	
C98	68	1000	78474	1469-00068					MS-468	
C99	68	1000	78478	1469-00068					MS-468	
C100	1	1000	73551	P1680-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C101	.033	600	79933	BPD-03	DF-303	CUB4S33	ED-03	GEM-4333	4TM-S33	
C102	.47	300	100297	P2683-47		CUB3S47		GEM-3147	3TM-S47	
C103	330	1000	79478	1469-00033					MS-333	
C104	01	400	73594	BPD-01	DD-103	CUB4S1	ED-01	GEM-401	4TM-S1	
C105	1980	1000	74350	1464-00056					MS-356	
C106	1	600	72557	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C107	27	200	73768	P288N-27		CUB2P27		GEM-2027	2TM-P27	
C108	.0012	600	76995	BPD-001	D6-122	CUB6D12	ED-0012	GEM-6212	6TM-D12	
C109	370	1000	79579	1467-00056	DD30-371				MS-337	
C110	.047	1000	73597	P1068N-047	DF-503	CUB1D647		GEM-1C47	1DTM-S47	
C111	560	1000	74350	1464-00056					MS-356	
C113	330	1500	101395	BPD-03-330	DD30-331	Y3T33			15GAB-T33	
C113	370	2500	100304		DD30-371	Y3T37			30GA-T37	
C114	150	3500	100483	HYD-30-150	DD30-151	Y3T15			35GA-T15	
C115	150	3000		HYD-30-150	DD30-151	Y3T15			30GA-T15	
C116	1	600	73551	P688N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C117	1	600	73551	P688N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

Note 1. Some versions use a 5M3M7 in this application.
Note 2. Some versions use an 8M6M7 in this application.

CONTROLS

ITEM No	RATING RESIST OHMS	RATING WATTS	RCA Victor PART No.	REPLACEMENT DATA CENTRALAB PART No.	CAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	15000 Ω	1	102533			UB-1P0S	Contrast	
B	1Meg Ω		Not Req.				Volume-Tap ② 250K	
C	Switch		Not Req.			Not Req.	On-off -Attach to R1B	
R2A	2.5Meg Ω		102777	B-83	A47-2.5Meg -6	Q11-239	U255	Tone
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
R3A	300K Ω		102409	B-46	A47-300K-6	Q11-139	U43	Brightness
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
R4A	1.5Meg Ω		102410	AB-742	A47-1.5Meg -6	Q11-138	U155	Vert. Hold
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	Not Req.	Attach to R4A
R5A	1.5Meg Ω		102409	BR-743	A47-1.5Meg -6	Q11-138	TA3S1.	Vert.Lin.
B	Shaft		Not Req.	Not Req.	FS3-1	TM2-32T	Not Req.	Attach to R5A
R6A	5Meg Ω		100290	AB-87	A47-5Meg-6	Q11-141	SU-67	Height
B	Shaft		Not Req.	AK-19	RM-3	TQ	Not Req.	Attach to R6A
R7A	500K Ω		100683	AB-61		Q17-133	TAP35R	AGC
B	Shaft		Not Req.	AK-1		SQ	Not Req.	Attach to R7A
R8A	2Meg Ω		100683	BR-75	A47-2Meg-6	Q11-139	TA3S1.	Sync Stabilizer
B	Shaft		Not Req.	Not Req.	FS3-1/4	RQ	Not Req.	Attach to R8A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING OHMS	RATING WATT	RCA Victor PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R9	56000			BTS-5600	Note 1
R10	27000		102227	BTS-2700	Note 2
R11	68000	1	102868	BTA-6800	
R12	56000		102268	BTS-5600	
R13	100K		102405	BTS-100K	
R14	1200		102118	BTS-120	
R15	15Meg		102510	BTS-15Meg	
R16	15Meg		102510	BTS-15Meg	
R17	8200		102182	BTS-820	
R18	10000		102205	BTS-1000	
R19	1000Ω		102220	BTS-1000	
R20	390K		102400	BTS-390K	
R21	100K		102405	BTS-100K	
R22	6800		102268	BTS-680	
R23	33000		102322	BTS-3300	
R24	2Tk 5%		102237	BTS-2T5K 5%	
R25	1K	3	102215	BTS-1K	
R26	1200		102118	BTS-120	
R27	100K		102400	BTS-100K	
R28	12K	3	102215	BTS-12K	
R29	15K	3	102218	BTS-15K	
R30	470K		102447	BTS-470K	
R31	33000		102322	BTS-3300	
R32	330000		102332	BTS-33K	
R33	47K 5%		102347	BTS-47K 5%	
R34	47K 5%		102247	BTS-47K 5%	
R35	100K		102405	BTS-100K	
R36	680Ω		102268	BTS-680	
R37	15K		102215	BTS-15K	
R38	150K 5%		102415	BTS-150K 5%	
R39	330K 5%		102435	BTS-330K 5%	
R40	680Ω		102268	BTS-680	
R41	470Ω		102147	BTS-470	
R42	1800 5%		102118	BTS-180 5%	
R43	820Ω	1	102182	BTA-820	
R44	4300Ω		100545	PW7-4000	
R45	27K		102227	BTS-27K	
R46	33K		102233	BTS-33K	
R47	22000 5%		102223	BTS-2200 5%	
R48	18000 5%		102218	BTS-1800 5%	
R49	220K		102422	BTS-220K	
R50	10K	2	102210	BTS-10K	
R51	2200Ω		102222	BTS-2200	
R52	30000 5%	1	102320	BTA-3000 5%	
R53	470K		102447	BTS-470K	
R54	1800Ω	2	102218	BTS-1800	
R55	1800Ω	2	102218	BTS-1800	
R56	470K		102447	BTS-470K	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R57	5600Ω	1	102156	BTA-560	
R58	560K		102456	BTS-560K	
R59	3300Ω		102133	BTS-330	
R60	180Ω		102118	BTS-180	
R61	22K		102232	BTS-22K	
R62	47K		102247	BTS-47K	
R63	82K		102382	BTS-82K	
R64	15K		102215	BTS-15K	
R65	47K		102347	BTS-47K	
R66	1000Ω		102210	BTS-1000	
R67	82Ω		102082	BTS-82	
R68	39K		102339	BTS-39K	
R69	33K 5%		102333	BTS-33K 5%	
R70	33K		102333	BTS-33K	
R71	10Meg		102810	BTS-10Meg	
R72	33Ω		102133	BTS-330	
R73	330K		102433	BTS-330K	
R74	1.5Ω		72787	BTS-1.5	
R75	470K		102447	BTS-470K	
R76	680Ω	1	102268	BTA-680	
R77	33000	7	102427	PW7-3300	
R78	47Ω			BTS-47	Note 3
R79	220K		102422	BTS-220K	
R80	56K 5%		102356	BTS-56K 5%	
R81	180K 5%		102413	BTS-180K 5%	
R82	33K		102333	BTS-33K	
R83	150K 5%		102413	BTS-150K 5%	
R84	47K	2	102347	BTS-47K	
R85	1.5Meg		102518	BTS-1.5Meg	
R86	270Ω	1	102127	BTS-270	
R87	56K		102356	BTS-56K	
R88	39K		102339	BTS-39K	
R89	270K		102437	BTS-270K	
R90	370K		102437	BTS-370K	
R91	1.5Meg		102518	BTS-1.5Meg	
R92	1Meg		102510	BTS-1Meg	
R93	1Meg		102510	BTS-1Meg	
R94	33K		102333	BTS-33K	
R95	560K		102456	BTS-560K	
R96	6800Ω	1	512268	BTA-6800	
R97	27000 5%		102227	BTS-2T00 5%	
R98	33K		102332	BTS-33K	

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R99	18K		102318	BTS 18K	
R100	6.8Meg		102568	BTS 0 8Meg	
R101	620K		102462	BTS-P20K	
R102	1Meg		102510	BTS-1Meg	
R103	1Meg		102510	BTS 1Meg	
R104	15K		102315	BTS-15K	
R105	8200Ω		102282	BTS-8200	
R106	330K		102433	BTS-330K	
R107	18K 5%		102318	BTS-18K 5%	
R108	22K		102322	BTS- 22K	
R109	220 5%	1	512322	BTA-22K 5%	
R110	470K		102447	BTS-470K	
R111	100Ω	1	512101	BTA-100	
R112	33000Ω		102333	BTS-3300	
R113	15K		102315	BTS-15K	
R114	150K		102415	BTS-150K	
R115	220K		102433	BTS-220K	
R116	470K		102447	BTS-470K	
R117	560Ω				
R118	560Ω				
R119	330K		102433	BTS-330K	
R120	820K		102462	BTS-820K	
R121	150K 5%		102415	BTS-150K 5%	Note 5
R122	82K 5%		102382	BTS-82K 5%	
R123	3900Ω		102239		
R124	100K 5%	1	512410	BTA-100K	Note 4
R125	6.8Meg		102568		
R126	33K		102422		
R127	47K	1	102347	BTS-47K	
R128	39K	1	512339		
R129	820K		102463		
R130	1Meg		102510	BTS-1Meg	
R131	47Ω		102047		
R132	10K	2	512310	BTS-10K	Note 6
R133	100Ω	3	512101	BTS-100	
R134	270K		102437	BTS-270K	
R135	56K		102356	BTS-56K	
R136	2200Ω		102222		
R137	470Ω		102147		
R138	1.8Ω		100309	BW[-1. 8	Note 7
R139	1000		102210	BTS-1000	
R140	100K		102405	BTS-100K	
R141	56Ω		102056	BTS-56	

Note 1. In some versions a 47000Ω is used. Replace with value found in unit.
Note 2. In some versions a 33000Ω is used. Replace with value found in unit.
Note 3. Not used in some versions.
Note 4. In some versions a 150K 5% is used.
Note 5. In some versions a 100K is used.
Note 6. In some versions a 6800Ω, 2 W (Part #512268) is used.
Note 7. In some versions a .56Ω (Part #100648) is used.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	RCA Victor PART No.	REPLACEMENT DATA Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117VAC @1.0A	385VCT @.280A	5VAC @3A	6.3VAC @.9.1A	101353						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Horiz. Output Trans.	100860	FB448 *	HVO-55 *		X138 *	A-8244 *	FLY-60 *	D-50 ① P	
T3	Vert.Output Trans	100867	21900 ② ③	A-8523 ② ③		Y301 ② ③	A-8251	26672 ② ③	A-10E2 ② ③	
T4A	Yoke(80°)Horiz. (18.5 mH)	101147 ⑤	DF607 ③ ⑤	MDF-52 ③ ⑤		Y90719/43 ③ ⑤	DY-32A ③	Y-16 ③ ⑤	Y-41 ③ ⑤	
B	Vert. (39.2MH)			MWC-30			WC-13 ③	WC-34 ③		
T5A	Width-Series Coil (.4-.3 IMH)	100863								
B	Parallel Coil (2.4-1MH)									

① Drill new mounting hole(s).
② Connect as auto transformer.
③ Connect B+ to point of original transformer red lead (yoke socket pin #1).
④ Use 7 to 1 horns ratio.
⑤ Includes yoke plug, capacitor C115, resistors R117 and R116. Does not include yoke rear cover and magnet assembly (RCA part #102443).
⑥ If necessary, use original horiz. yoke damping network with capacitor C115 across horizontal yoke terminals #3 and #7.
⑦ Connect horizontal yoke terminal #3 to yoke plug pin #4, horizontal yoke terminals #2 and #7 to yoke plug pin #5, horizontal yoke terminal #1 to yoke plug pin #8.
⑧ Use original rear cover and magnet assembly.
⑨ Use original core and mounting clip.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL (CONNECTION)	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5	5	5	5	5	5	5	9
4	4	4	4	4	4	4	7
3	3	3	3	3	3	3	5
2	2	2	2	2	2	2	3
1	1	1	1	1	1	1	1
Connect Width Coil Across	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 3

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	RCA Victor PART No.	REPLACEMENT DATA Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	7.8KΩ 3-4Ω 6.6KΩ 1-9Ω	100856 ① 100857 ①	Z1003 Z1006	A-3020 A-2902	A-3823 A-3852	[illegible] 26846	8-92 8-92	

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V C IMP	RCA Victor PART No.	QUAM PART No.	RCA TYPE No	NOTES
SP1	8" 5"	PM PM	3-4Ω 3-4Ω	74664 ① ② 77900 ②	SA8	20893	① One used in Models 24T7272, U, 24T7275, U, 24T7277, U, 25T7215, U, 25DT26, U, 25DT27, U, 25DT275, U, 25DT277, U. ② Two used in Models 24D7296, U, 24DT296, U, 24DT297, U, 24DT285, U, 24DT287, U. ③ One used in Model 21D7174, U, 21DT176, U, 21DT178, U, 21-T-7177, U, 21DT285, U, 21DT286, U, 21DT27, U, 21DT275, U, 21DT277, U.

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L1	UHF Ant. Coil	79564	
L2	Fil. Choke	79565	
L3	Fil. Choke	79565	
L4	Cathode Choke	79565	
L5	UHF Osc. Coil	79557	
L6	UHF IF Output	79557	
L7	VHF Ant. Coils	78396	Stator complete with rotor. Includes Cb. Channel 13
L8	VHF Ant. Coil	78401	
L9	RF Coil	102845	
L10	UHF IF Input	79542	
L11	Fil. Choke	77396	
L12	Neut Coil	78562	
L13	RF Choke	78466	

ITEM No.	USE	RCA Victor PART No.	NOTES
L14	VHF RF Coils	78374	Stator complete with rotor. Includes C33, C34, C37 & R16
L15	VHF Mixer Grid Coils	78372	Stator complete with rotor. Includes C30, C36, C37, R17, R18, R19 & R30
L16	Fil. Choke	76763	
L17	VHF Osc. Coils	79068	Stator complete with rotor. Includes C30. Channel 13
L18	VHF Osc. Coil	77859	
L19	Conv. Plate Coil	102448	Includes trap
L20	Trap Coil	102846	Includes C32

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES PRI.	DC RES SEC.	RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	RCA TYPE No	Ram PART No.	Thordarson PART No.	NOTES
L-40	80Ω		[illegible]						28S-7	Tapped @ 28Ω Horiz. Osc. Horiz. Waveform
L-41	44Ω		100300							

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE IN CURRENT .000 Ω	RCA Victor PART No.	REPLACEMENT DATA Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L43	.280A	38.5Ω	1.2 HY	77876	C5037①	C-2974	C-2336	26C44	C-33X

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	RCA Victor PART No. FUSE	RCA Victor PART No. HOLDER	LITTELFUSE PART No FUSE	LITTELFUSE PART No HOLDER	BUSS PART No FUSE	BUSS PART No HOLDER
M1	C	3/10A 250V	102164	102163	333.300 (C 3/10A)	346001	C 3/10	HC 0 to 3/10

PARTS LIST AND DESCRIPTIONS (Continued)

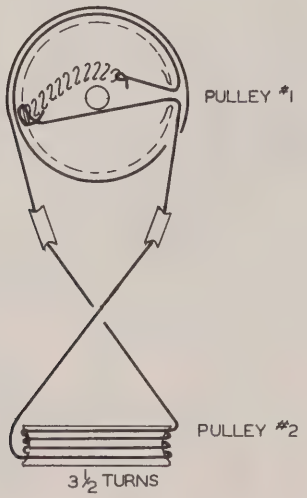
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		RCA Victor PART No.	SYLVANIA PART No.	
M2	1N82	77489	1N82A	UHF Mixer (Clip in) Note 1
M3	K60	79985	1N60	Video Det. (Pigtail) Note 2

Note 1. A K3D may be used in some versions.
Note 2. A 1N64 may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M4	Tuner	KRK36	UHF, All models with UHF
M5	Tuner	KRK29R	VHF, Chassis KCS103B, KCS103D, KCS103P, KCS103T
	Tuner	KRK22L	VHF, Chassis KCS103A, KCS103C, KCS103R, KCS103N
M6	Ant. Matching Assy.	100454	Complete assembly
M7	Switch	102844	VHF-VHF/UHF Ant. (Slide Type)
M8	Switch	102686	TV-Phono (Slide Type)
M9	Focus Magnet	102482	
M10	Ion Trap	76141	
	Trimmer Cap.	78397	Mica (80-135MMF) VHF Osc.
	Trimmer Cap.	100849	IF Link (10-160MMF)
	Trimmer Cap.	100849	Horiz. Drive (10-160MMF)
	Trimmer Cap.	77616	Mica (4-40MMF)
	Trimmer Cap.	79558	(10-50MMF)
	Knob	102581	Brightness, Vert. Hold, Tone - All models
	Knob	101124-B	Contrast - All models
	Knob	101276-B	Fine tuning- All Models
	Knob	100620-B	On-off-volume - Models 24T7272, U
	Knob	101138-B	On-off-volume, - Models 24T7275, U, 21D7175, U, 21D7215, U, 21D7235, U, 24D7295, U, 24D7315, U
	Knob	100621-B	On-off-volume - Models 24T7277, U, 24D7296, U, 24D7297, U, 24D7315, U, 21D7174, U, 21D7176, U, 21D7177, U, 21D7216, U, 21D7217, U, 21D7237, U
	Knob	102580	UHF Tuning - Model 24T7272U
	Knob	102653	UHF Tuning - Models 24T7275U, 24D7295U, 24D7315U, 21D7175U, 21D7215U, 21D7235U
	Knob	102578	UHF Tuning - Models 24T7277U, 24D7296U, 24D7297U, 24D7317U, 21D7174U, 21D7176U, 21D7177U, 21D7216U, 21D7217U, 21D7237U
	Knob	101258-B	VHF Channel Selector - Model 24T7272
	Knob	100944-B	VHF Channel Selector - Model 24T7275
	Knob	100945-B	VHF Channel Selector - Model 24T7277
	Knob	102722	VHF Channel Selector - Models 24D7295, 24D7295U, 24D7315, 24D7315U, 21D7175, 21D7215, 21D7235
	Knob	102723	VHF Channel Selector - Models 21D7174, 21D7176, 21D7177, 21D7216, 21D7217, 21D7237, 24D7296, 24D7296U, 24D7297, 24D7297U, 24D7317, 24D7317U
	Knob	101259-B	VHF/UHF Channel Selector - Model 24T7272U
	Knob	100946-B	VHF/UHF Channel Selector - Model 24T7275U
	Knob	100947-B	VHF/UHF Channel Selector - Model 24T7277U
	Safety Glass	102728	All 24" Models
	Safety Glass	100575	All 21" Models

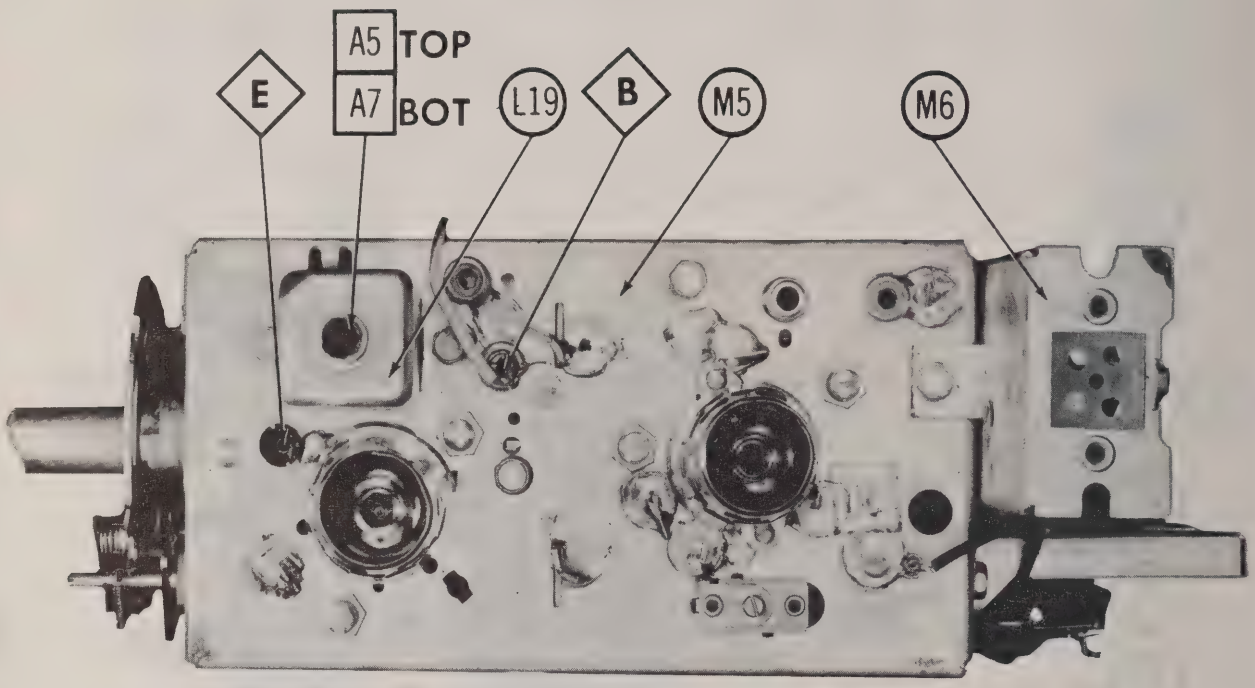


FINE TUNING SHAFT & PULLEY #1 IN MAX. CLOCKWISE POSITION.

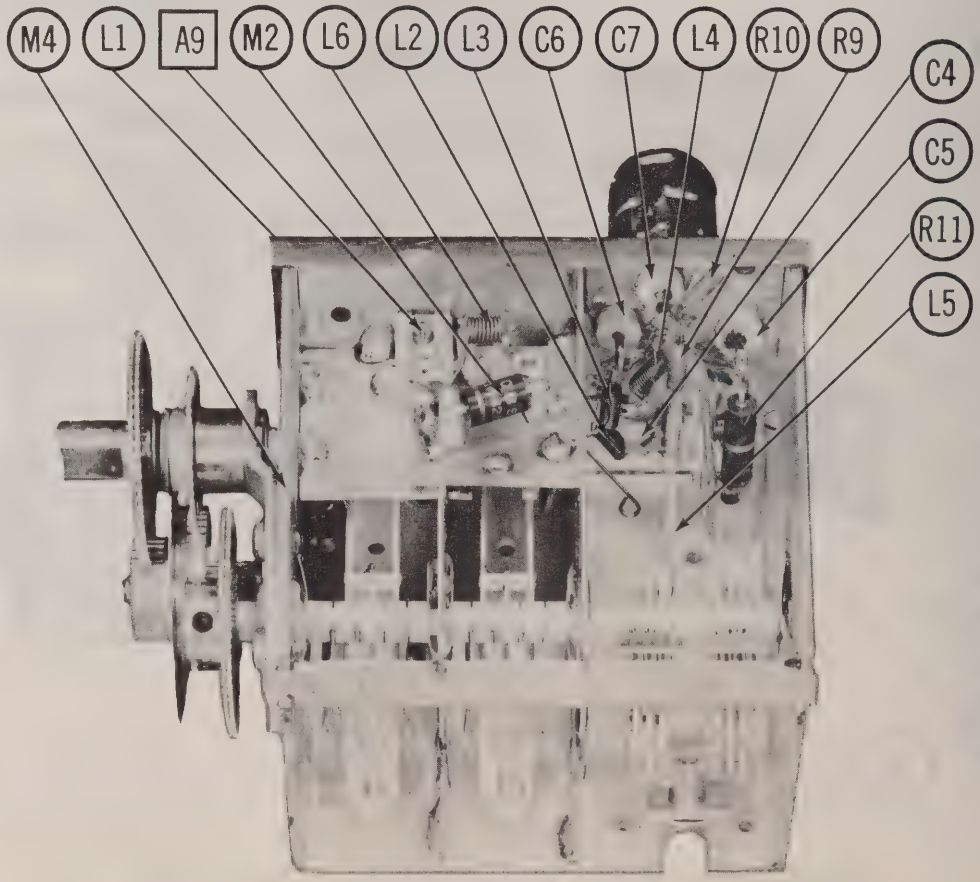
VHF FINE TUNING DRIVE CORD STRINGING

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.,
DENVER, COLORADO

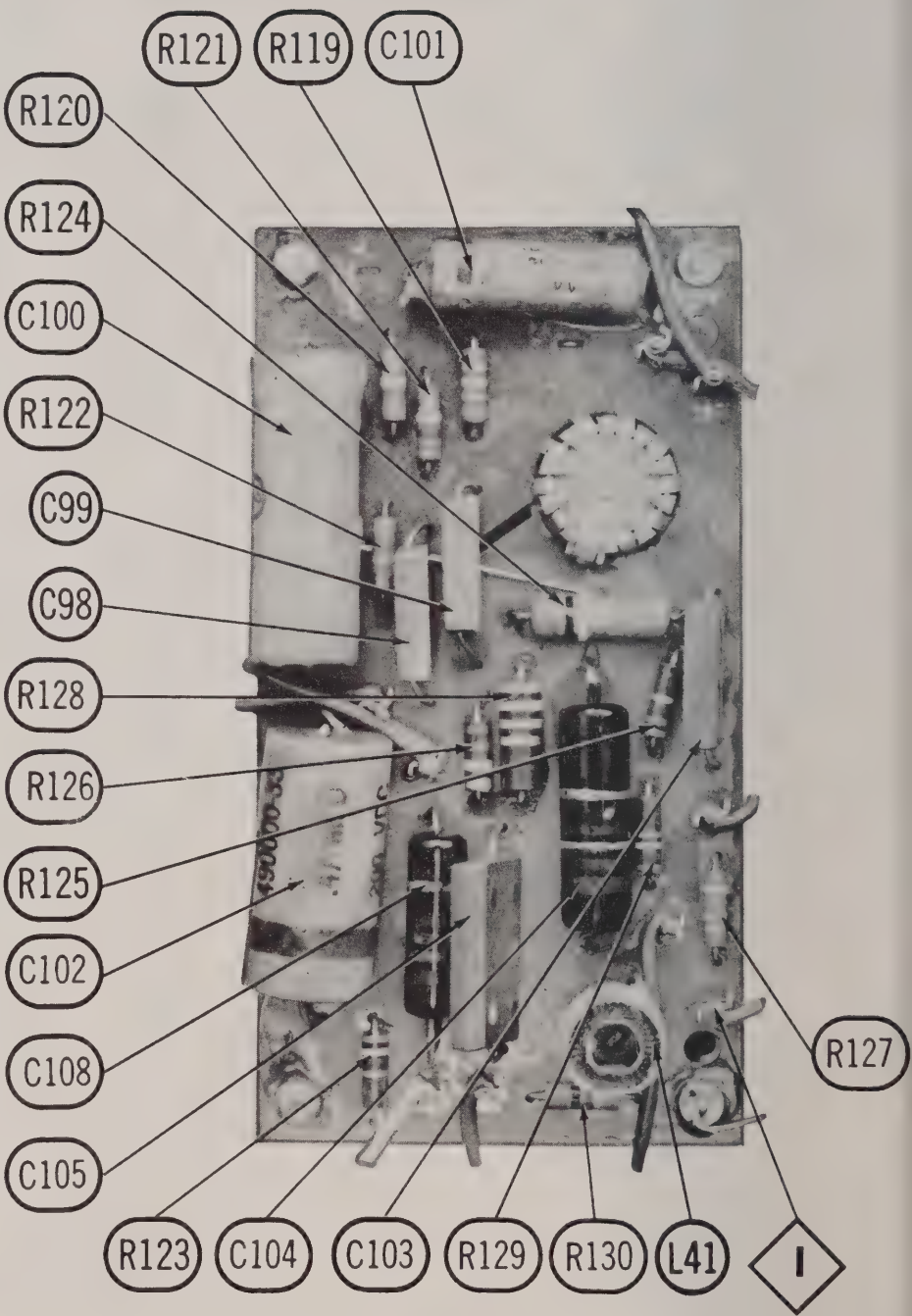
RF TUNER-LEFT SIDE



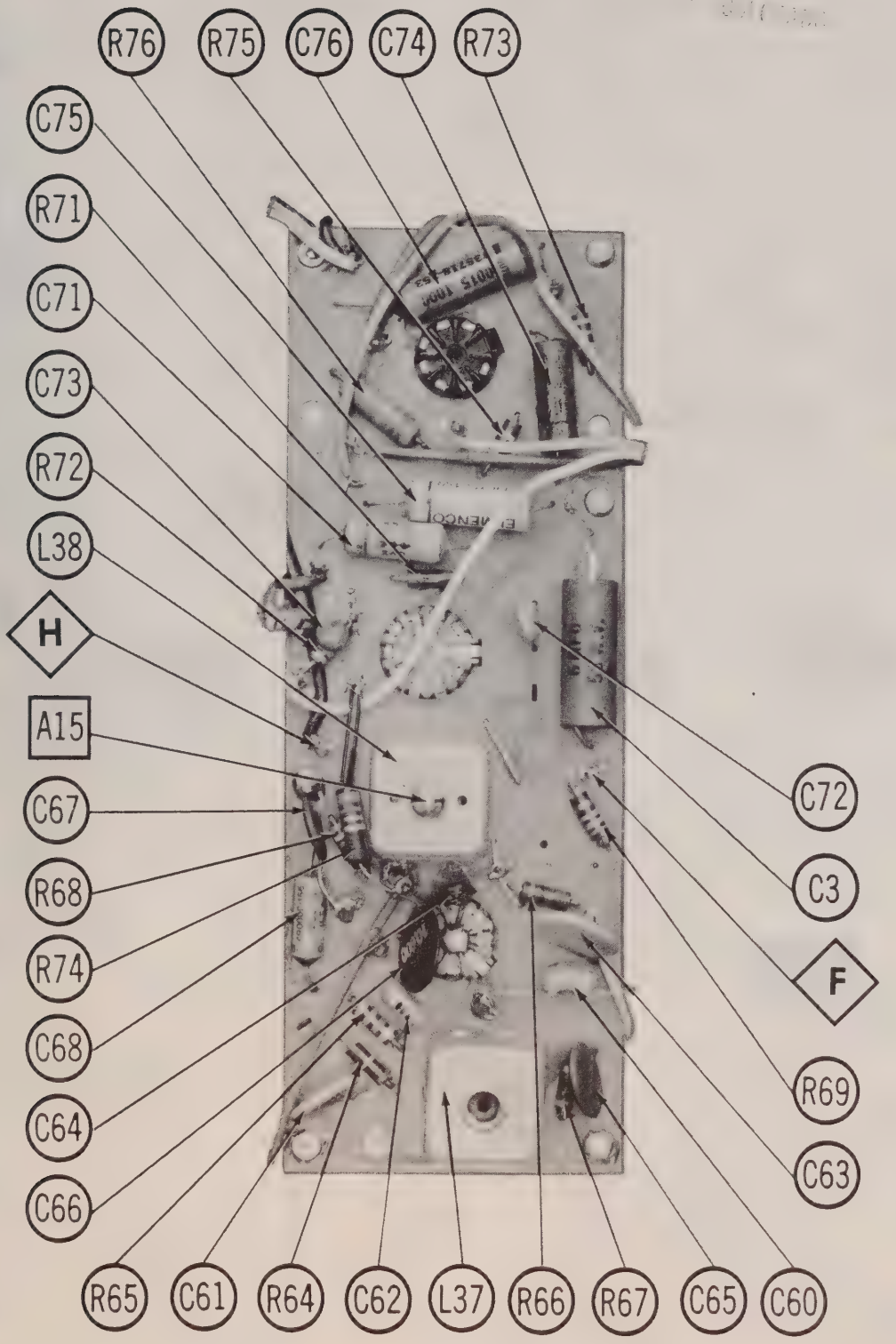
RF TUNER-TOP VIEW



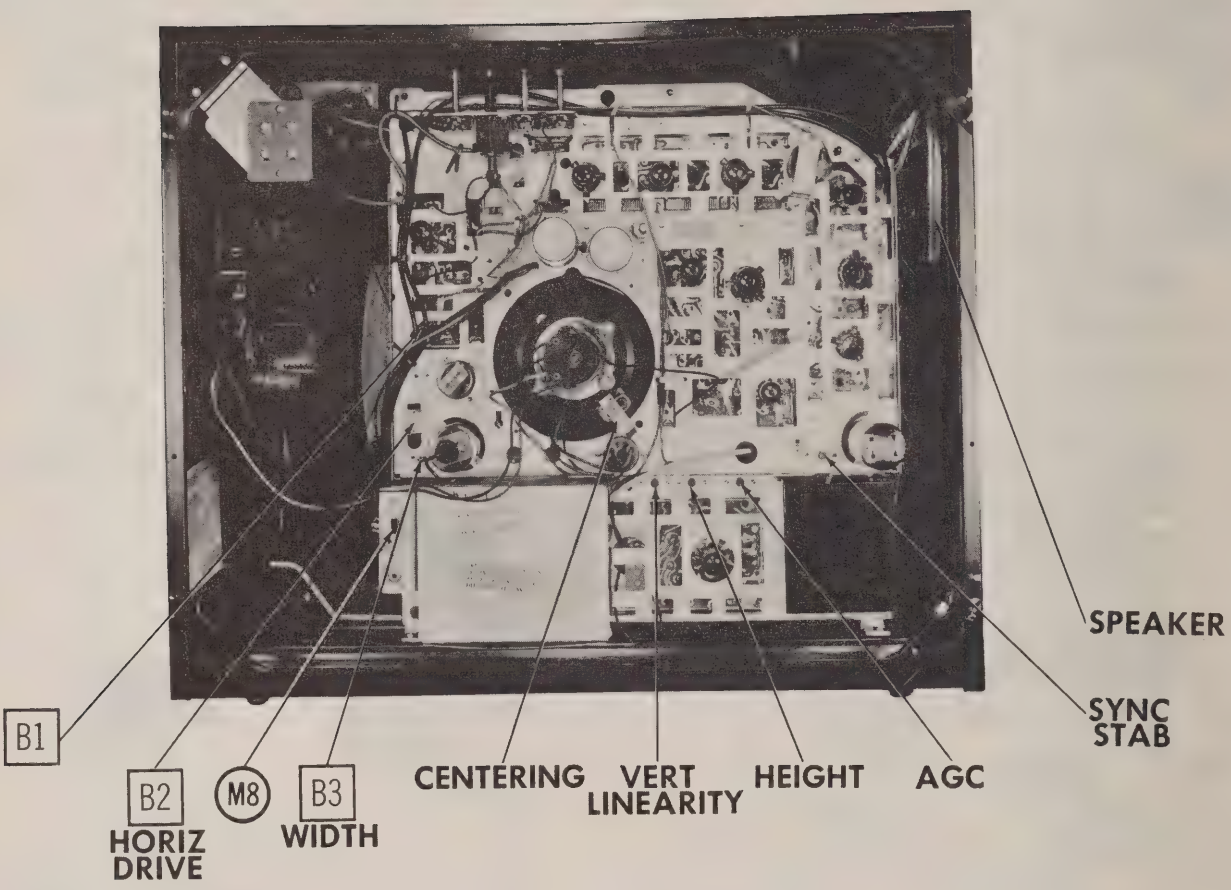
UHF TUNER



HORIZ. OSC. PRINTED BOARD



SOUND CIRCUIT PRINTED BOARD



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a clip lead across the horizontal waveform coil (L41) and adjust the horizontal hold until the picture synchronizes horizontally. Remove the clip lead from across L41. Connect the low capacity probe of an oscilloscope to point ⟨1⟩. Connect low side to chassis. Turn the horizontal hold clockwise until the picture falls out of sync, then counter clockwise until the picture just falls into sync.

Adjust the horizontal waveform slug (B1) until the waveform on the scope appears similar to Fig. 5. If necessary, during adjustment of B1, keep the picture in sync with the horizontal hold. Remove the scope.

Set the width slug (B3) fully counter clockwise. Adjust the horizontal drive trimmer (B2) counter clockwise until a bright vertical line appears in the picture, then turn clockwise until the line just disappears.

Adjust the width slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

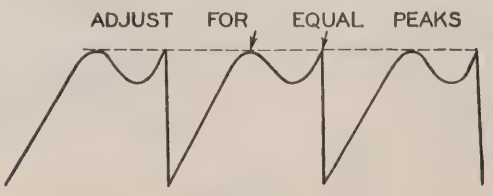


FIG. 5

RETMA MEMBER

SHERWOOD MODEL S-1000

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SHERWOOD
MODEL S-1000

SHERWOOD
MODEL S-1000

TRADE NAME	Sherwood Model S-1000
MANUFACTURER	Sherwood Electronic Laboratories, Inc., 2802 W. Cullom Ave., Chicago 18, Ill.
TYPE SET	AC Operated 5 Channel Audio Amplifier
TUBES (Seven)	Types EF86/Z729 Preamplifier, 12AX7 1st. AF Amplifier, 12AX7 2nd. AF Amplifier, 12AU7A 3rd. AF Amp.-Phase Inv., (2) 6L6GB Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .55 Amp. @ 117 Volts AC

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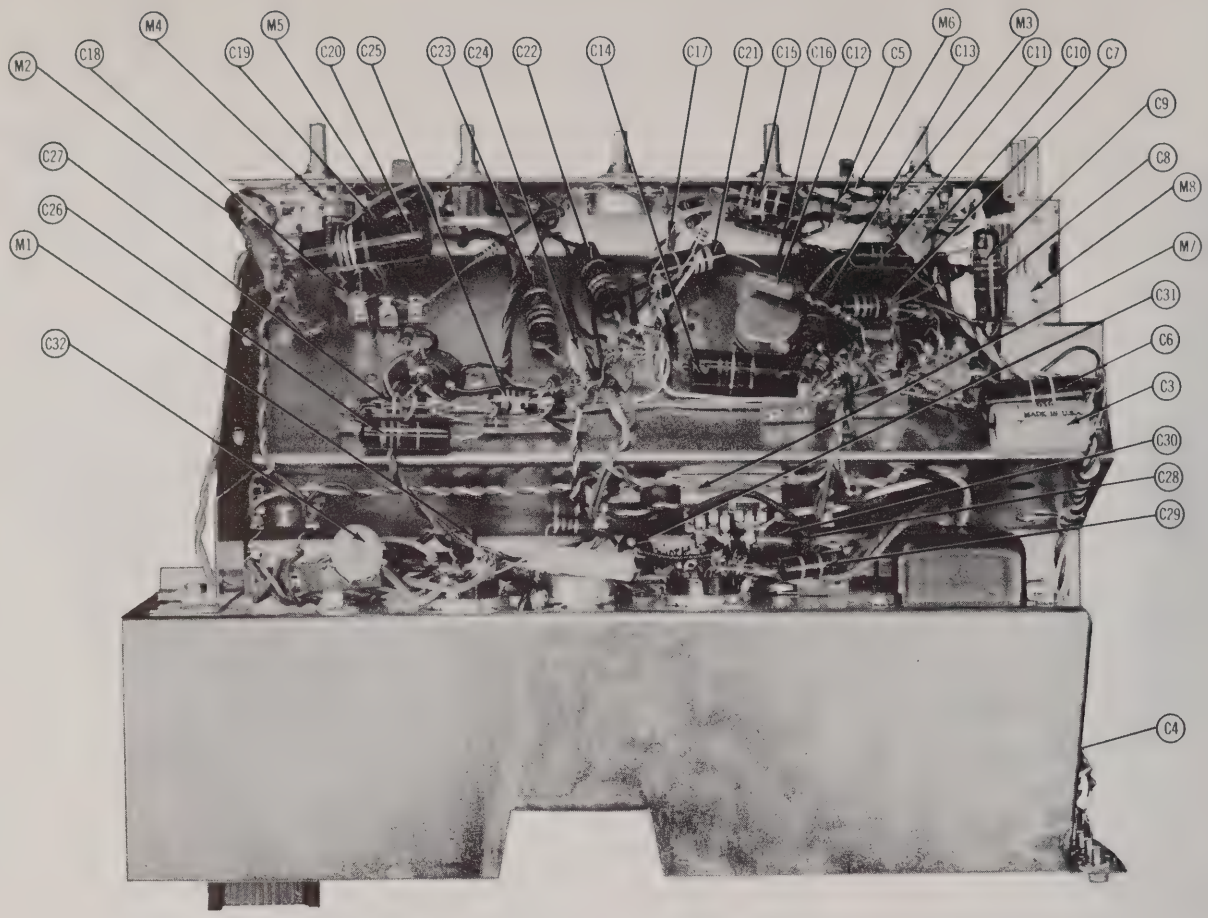
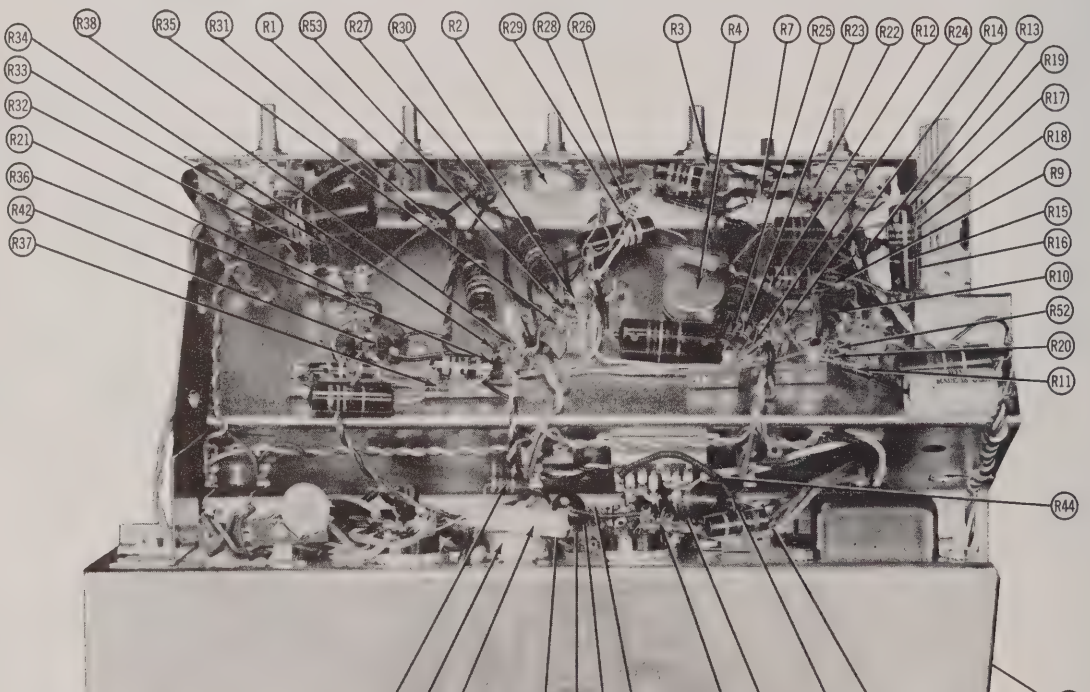


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamplifier	EF86/ Z729	
V2	AF Amplifier	12AX7	
V3	AF Amplifier	12AX7	
V4	AF Amp.-Phase Inverter	12AU7A	
V5	Output	6L6GB	
V6	Output	6L6GB	
V7	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SHERWOOD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	400		AFH4-85	BO450 BR505	FP369.1		T-715	R2323 *
B	■40	400							
C	▲50	50							
C2A	▲10	400		AFH2-47	BO390	FP231	TMD-41	D-200 MT-4504	R2322 *
B	■15	400							
C3	25	10		PRS25V25	BR252	TC26	TD-25-25	FM-0225	TVA-1205

* Non-catalog item.

FIXED CAPACITORS

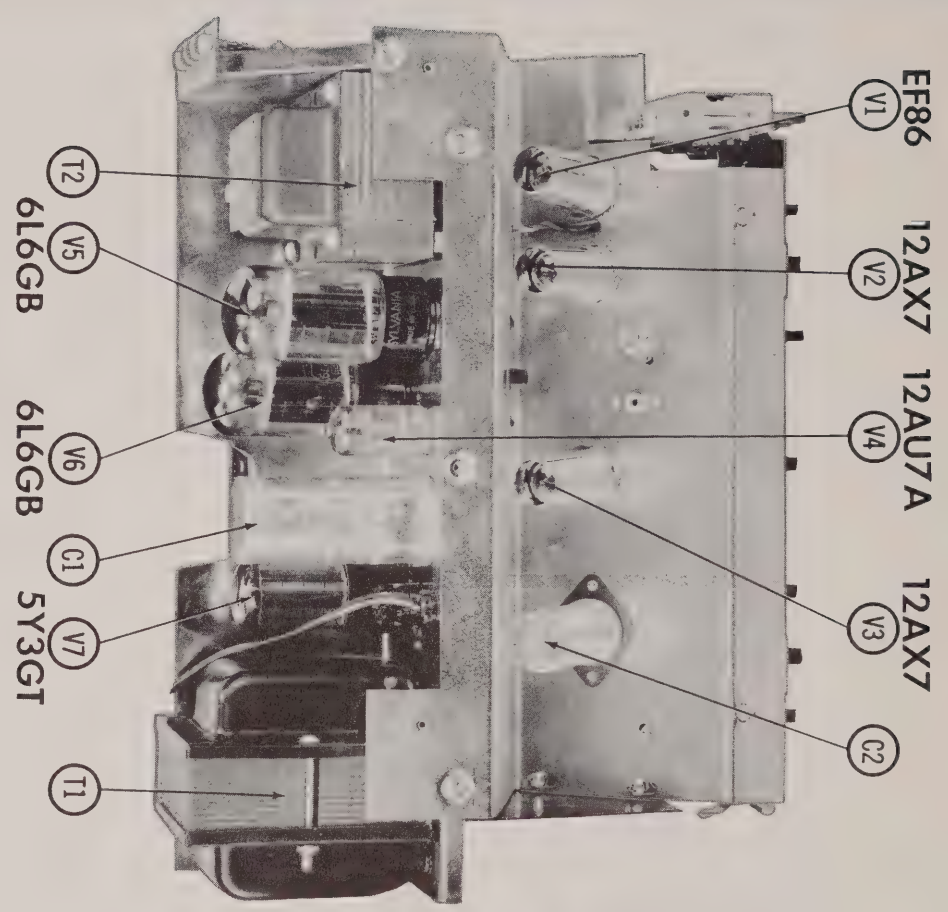
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SHERWOOD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	100	500		NP0-SI 100	D6-101	22R5T1	ED-100	MCB235	MS-31	
C5	.0039	400		1464-0039		1R5D39			MS-239	
C6	.1	400		P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C7	.0068	400		1464-0068					MS-368	
C8	1200			1464-0012		1R5D12	ED-1200		MS-212	
C9	.022	400		BPD-02	DF-203	CUB4S22	817-02	PT4122	4TM-S22	
C10	1200			1464-0012		1R5D12	ED-1200		MS-212	
C11	.033	400		BPD-03	DF-303	CUB6S33		PT4133	6TM-S33	
C12	470	500		1464-00047	D6-471	5R5T47	ED-470		MS-347	
C13	.01	400		BPD-01	D6-103	CUB4S1	GP-10000	PT411	4TM-S1	
C14	.15	200		P288N-15		CUB2P15		PT4015	2TM-P15	
C15	.0033	400		1464-0033		1R5D33			MS-233	
C16	.0033	400		1464-0033		1R5D33			MS-233	
C17	100	500		NP0-SI 100	D6-101	22R5T1	ED-100	MCB-235	MS-31	
C18	47	500		NP0-SI47	D6-470	22R5Q47	ED-47	ZT-547	MS-447	
C19	.056	400								
C20	18	200								
C21	.033	400		BPD-03	DF-303	CUB6S33		PT4133	6TM-S33	
C22	.033	400		BPD-03	DF-303	CUB6S33		PT4133	6TM-S33	
C23	.033	400		BPD-03	DF-303	CUB6S33		PT4133	6TM-S33	
C24	2200			1464-0022		1R5D22			MS-222	
C25	.0039	400		1464-0039		1R5D39			MS-239	
C26	.033	400		BPD-03	DF-303	CUB6S33		PT4133	6TM-S33	
C27	.0047	400		BPD-0047	D6-472	CUB6D47	GP-4700	PT6247	6TM-D47	
C28	120	500		DI-00012	D6-121	5W5T12	GP-120	UC-5312	1FM-312	
C29	.01	400		BPD-01	D6-103	CUB4S1	GP-10000	PT411	4TM-S1	
C30	.1	400		P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C31	.1	400		P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C32	5000	1000		HVD-15-1000	DD-502		1R5KV-472		10HK-D47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SHERWOOD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	250K	1	670A66					Volume Loudness tap @ 18K and 45K
R2A	500K	½	670A81	ABT-67			UT-430	Treble - tap @160K
B	Shaft		Not Req.	AK-3			Not Req.	Attach to R2A
R3A	1Meg	½	670AB2	AB-69	A47-1Meg-S	Q11-137	U54	Bass
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	Not Req.	Attach to R3A
R4A	500K	½	670AB4	AB-60	A47-500K-Z	Q13-133	U48	Phono Level
B	Shaft		Not Req.	AK-1	FKS-1/4	SQ	Not Req.	Attach to R4A
R5A	1000Ω	½	670AB5	AB-5	A47-1000-S	Q11-108	U4	Hum Null
B	Shaft		Not Req.	AK-1	FKS-1/2	SQ	Not Req.	Attach to R5A

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SHERWOOD PART No.	IRC PART No.	
R6	47K			BTS-47K	
R7	15K			BTS-15K	
R8	33K			BTS-33K	Note 1
R9	150K			BTS-150K	
R10	100K			MBC-100K	
R11	820K			BTS-820K	
R12	1Meg			BTS-1Meg	
R13	270K			MBC-270K	
R14	220K			BTS-220K	
R15	10Meg			BTS-10Meg	
R16	2.2Meg			BTS-2.2Meg	
R17	56K			BTS-56K	
R18	100K			BTS-100K	
R19	10Meg			BTS-10Meg	
R20	2700Ω			BTS-2700	
R21	10K			BTS-10K	
R22	1Meg			BTS-1Meg	
R23	470K			BTS-470K	
R24	47K			BTS-47K	
R25	680Ω			BTS-680	
R26	100K			BTS-100K	
R27	47K			BTS-47K	
R28	100K			BTS-100K	
R29	470K			BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SHERWOOD PART No.	IRC PART No.	
R30	150K			BTS-150K	
R31	330K			BTS-330K	
R32	12K			BTS-12K	
R33	2200Ω			BTS-2200	
R34	1Meg			BTS-1Meg	
R35	150K			BTS-150K	
R36	10Meg			BTS-10Meg	
R37	1Meg			BTS-1Meg	
R38	2700Ω			BTS-2700	
R39	120K			BTS-120K	Note 1
R40	1Meg			BTS-1Meg	
R41	270K			BTS-270K	Note 2
R42	6800Ω			BTS-6800	
R43	10K 5%			BTS-10K	
R44	12K 5%			BTS-12K	
R45	220Ω			BTS-220	
R46	47K 5%	1		BTA-47K	Note 3
R47	47K	1		BTA-47K	Note 3
R48	220K			BTS-220K	
R49	220K			BTS-220K	
R50	4700Ω	1		BTA-4700	
R51	240Ω	7		PW7-250	
R52	1500Ω			BTS-1500	
R53	2700Ω			BTS-2700	

Note 1. Not used in some versions.
Note 2. Some versions may use 220K in this application.
Note 3. R46 and R47 are matched within 3%.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	SHERWOOD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @.55A	700VCT @.125A	5VAC @ 2A	6.3VAC @2.9A	922ABI			PC-8410		

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

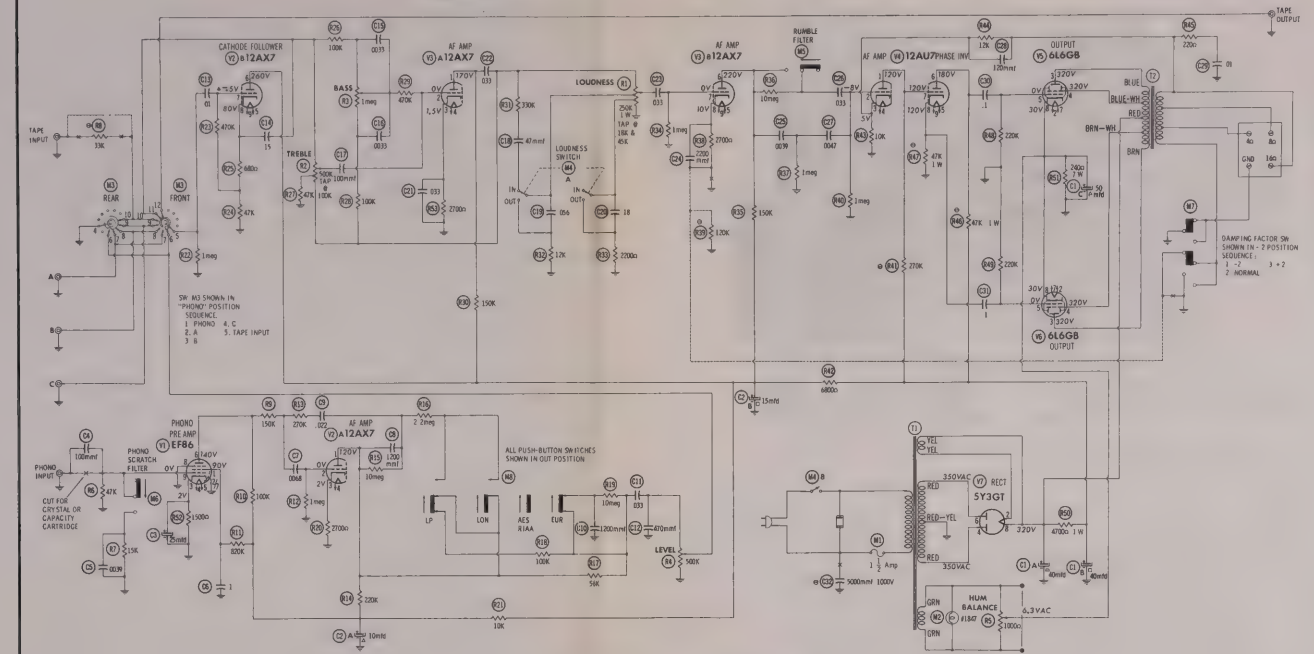
ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SHERWOOD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5500Ω	16Ω Tap @ 8Ω, 4Ω	920ABI						

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SHERWOOD PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	1½A 125V			31301.5 (3AG - S/B- 1½A)	342003	MDL 1½	HKP

MISCELLANEOUS

ITEM No.	PART NAME	SHERWOOD PART No.	NOTES
M2	Pilot Light		#1847. Some versions may use Type #47
M3	Switch		Selector (Rotary, wafer type)
M4A	Switch		Power (On-off) SPST (Rotary, wafer type)
B	Switch		Loudness (In-out) DPDT (Rotary, wafer type)
M5	Switch		Rumble Filter (SPST- Slide Type)
M6	Switch		Phono Scratch Filter (SPST-Slide Type)
M7	Switch		Damping Factor (3 position - Slide Type)
M8	Switch Assy.		Phono Equalization (Pushbutton slide type)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2729	†.850K	0Ω	1500Ω	600Ω	600Ω	†.130K	0Ω	0Ω	.47K * .11K
V2	12AX7	†.250K	1Meg	270Ω	600Ω	600Ω	†.11K	590K	50K	600Ω
V3	12AX7	†.170K	700K	270Ω	600Ω	600Ω	†.170K	1Meg	270Ω	600Ω
V4	12AU7A	†.275K	1Meg	10K	600Ω	600Ω	†.50K	275K	47K	600Ω
V5	6L6GB	TP	600Ω	†.11Ω	†2.5Ω	220K	NC	600Ω	240Ω	
V6	6L6GB	TP	600Ω	†.11Ω	†2.5Ω	220K	TP	600Ω	240Ω	
V7	5Y3GT	NC	150K	NC	80Ω	NC	60Ω	TP	150K	

† MEASURED FROM PIN 8 OF V2
* MEASURED WITH PHONO SCRATCH FILTER SWITCH CLOSED
▲ MEASURED FROM PIN 8 OF V2

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. All controls at minimum, proper output load connected

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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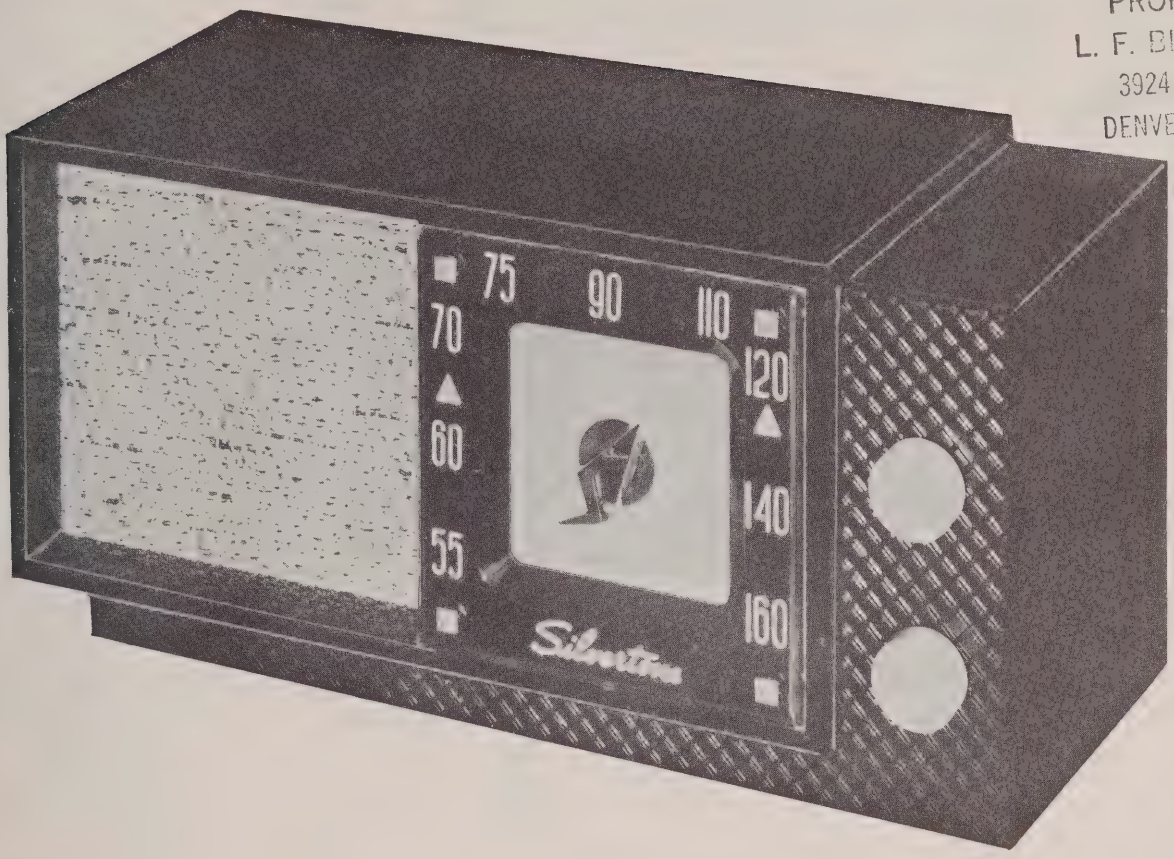
SILVERTONE MODELS
7006, 7007 (Ch. 132.39900)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE MODELS
7006, 7007 (Ch. 132.39900)



SILVERTONE MODELS
7006, 7007 (Ch. 132.39900)

TRADE NAME	Silvertone Models 7006, 7007 (Ch. 132. 39900)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier

POWER SUPPLY 110-120 Volts AC-DC RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 535KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal.	"	A6	"
4.		"	600KC	Tune to 600KC signal.	"	A7	Adjust for maximum output while rocking tuning gang.

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PARTS LIST AND DESCRIPTIONS

SILVERTONE MODEL 7006

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■50	150	43672	AFH2-15	BO150	FP213	TMD-12	D065	TVL-2432
B	▲30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	20000		43674-2	BPD-02	DD-203	K085	ED-02		5HK-S2	
C3	150		43957-2	BPD-00015	DD-151	G046	ED-150	UC-5315	5GA-T15	
C4	10000		43674-1	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C5	20000		43674-2	BPD-02	DD-203	K085	ED-02		5HK-S2	
C6	20000		43674-2	BPD-02	DD-203	K085	ED-02		5HK-S2	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	43745					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

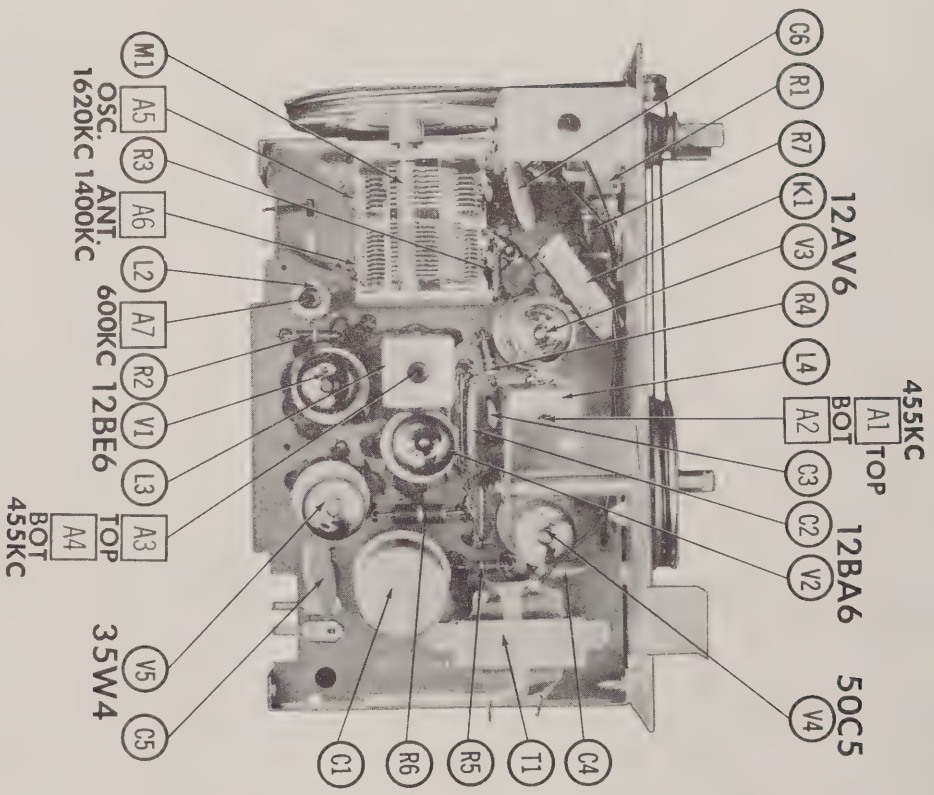
ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R2	22K		43687-223	BTS-22K	
R3	2.2Meg		43687-225	BTS-2.2Meg	
R4	47K		43687-473	BTS-47K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R5	120Ω		43689-121	BTS-120	
R6	1200Ω	1	43688-122	BTA-1200	
R7	330K		43687-334	BTS-330K	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2900Ω	3-4Ω	42700-13	Z1004 ①	A-3025	A-3332	26S58 ①	S-12X	① Fabricate mtg.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	RCA TYPE No.	
SP1	5"	PM	3-4Ω	25756-2	5A07	205S2	

COILS (RF-IF)

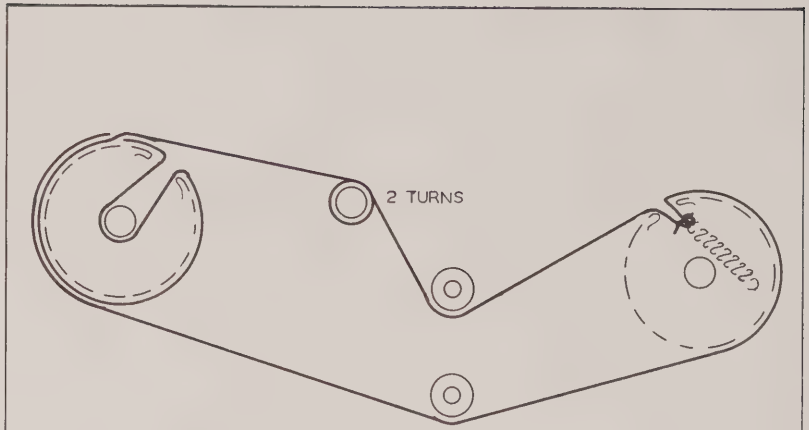
ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	3.3Ω		43791-1				
L2	Osc. Coil	.4Ω	5Ω	43644-1				
L3	Input IF	16Ω	16Ω	43669-1				
L4	Output IF	16Ω	16Ω	43669-1				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA	
K1	Audio Circuit	6.8Meg, 470K, 470K, 220MMF, 250MMF, 5000MMF, 5000MMF	43743-1	Aerovox Centralab Sprague	PA-512 PC-158 DT-5

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Tuning Cap.	43670	2 Gang
	Cabinet Ass'y.	43776-1	Brown
	Cabinet Ass'y.	43776-2	Ivory
	Knob	43742-8	On-Off-Volume & Tuning
	Dial Crystal	43744-2	Brown Cabinet
	Dial Crystal	43744-1	Ivory Cabinet
	Pointer	43741	

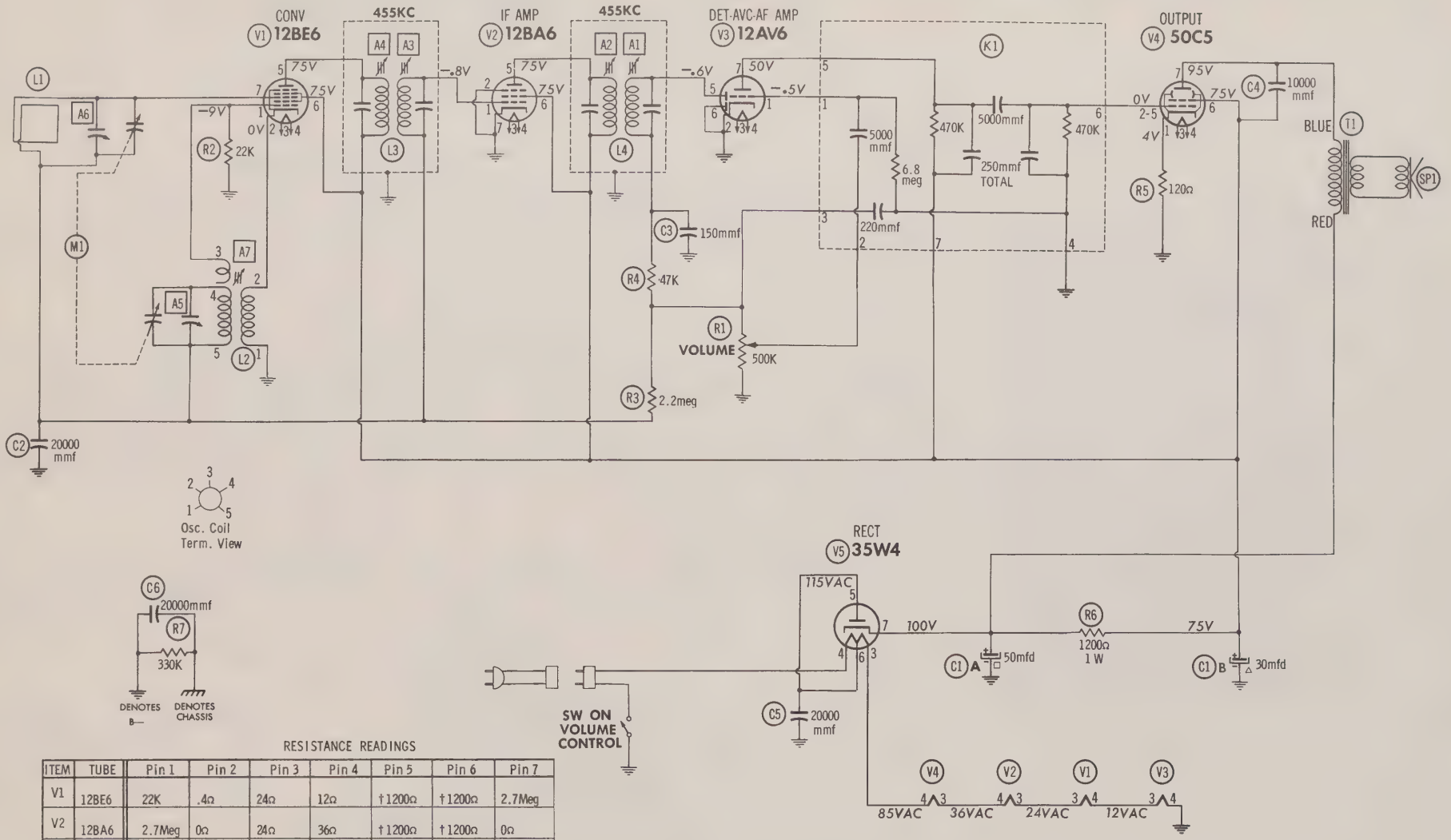


TUNING GANG FULLY CLOSED

DIAL CORD STRINGING

SILVERTONE MODEL 7006

SILVERTONE MODEL 7006



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.4Ω	24Ω	12Ω	†1200Ω	†1200Ω	2.7Meg
V2	12BA6	2.7Meg	0Ω	24Ω	36Ω	†1200Ω	†1200Ω	0Ω
V3	12AV6	6.8Meg	0Ω	12Ω	0Ω	550K	0Ω	†470K
V4	50C5	120Ω	470K	36Ω	85Ω	470K	†1200Ω	†180Ω
V5	35W4	NC	NC	85Ω	115Ω	105Ω	105Ω	50K

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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STUDEBAKER
MODELS AC-2746, AC-2748

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STUDEBAKER
MODELS AC-2746, AC-2748

TRADE NAME	Studebaker Models AC-2746, AC-2748 (For 1956 Studebaker Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated Custom Built AM Automobile Receiver
TUBES (Six)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12AU6 IF Amplifier, 12AV6 Det-AVC-AF Amp., 12V6GT Output, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 3.1 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Tone control to "Treble".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400∿ Mod)	High frequency end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	82MMF	High side to antenna receptacle. Low side to chassis.	1615KC	"	"	A5, A6, A7	Check mechanical setting of A8. If necessary, adjust A8 so that rear of core is 1 25/32" from mounting end of coil form. Adjust A5, A6 and A7 for maximum output in order given.
3.	"	"	1000KC	Tune to 1000KC signal.	"	A8, A9	Adjust for maximum output.
4.	"	"	1615KC	High frequency end stop.	"	A6, A7	Retouch for maximum output.
5.	"	"	900KC	Tune to 900KC signal.	"		If necessary, adjust dial pointer on dial cord to coincide with 900KC mark on dial.
6.	With radio installed in car and antenna fully extended, tune in a weak station between 600KC and 1000KC, adjust A7 for maximum volume.						

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12AU6	

ITEM No.	USE	TYPE	NOTES
V4	Det-AVC-AF Amp.	12AV6	
V5	Output	12V6GT	
V6	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	6309	AFH2-51	BO400	FP234	TMD-50	D-215	TVL-2755
B	▲20	400							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	6512	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C3A	15		6361		TCA-15		N330K-150			Note 1
B	39		6366				N330L-390			Note 1
C4	180		7266832							
C5	.047	400	6512	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C6	2000			DI-002	DD-202	K072	801-002	DC522	5GA-D2	Note 2
C7	.01	400	6510	BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C8	.05	400	6512	BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C9	.001	600	6527	BPD-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C10	.006	800	H-602	P1088N-006	DD16-602	CUB16D6		PT1626	MB-D6	
C11	.007	1600	H-702	P1688N-007	DD16-702	CUB16D7		PT1627	MB-D7	
C12	.47	100	6516	VHC36		ST2P5		RF480	68P20	
C13	.47	100	6592	VHC36		ST2P5		RF480	68P20	
C14	.47	100	6592	VHC36		ST2P5		RF480	68P20	

Note 1: C3A and C3B may be separate items in some versions.
Note 2: Some versions may use .022MFD in this application. (Part #6511)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2.5Meg	½	7267403	F1-79				Tone (Panel)
B	350K		Not Req.	R2-41				Volume (Rear)
C	Bushing		Not Req.	AK-26				Attach to R1A
D	Switch		Not Req.	KB-4				Attach to R1B

RESISTORS

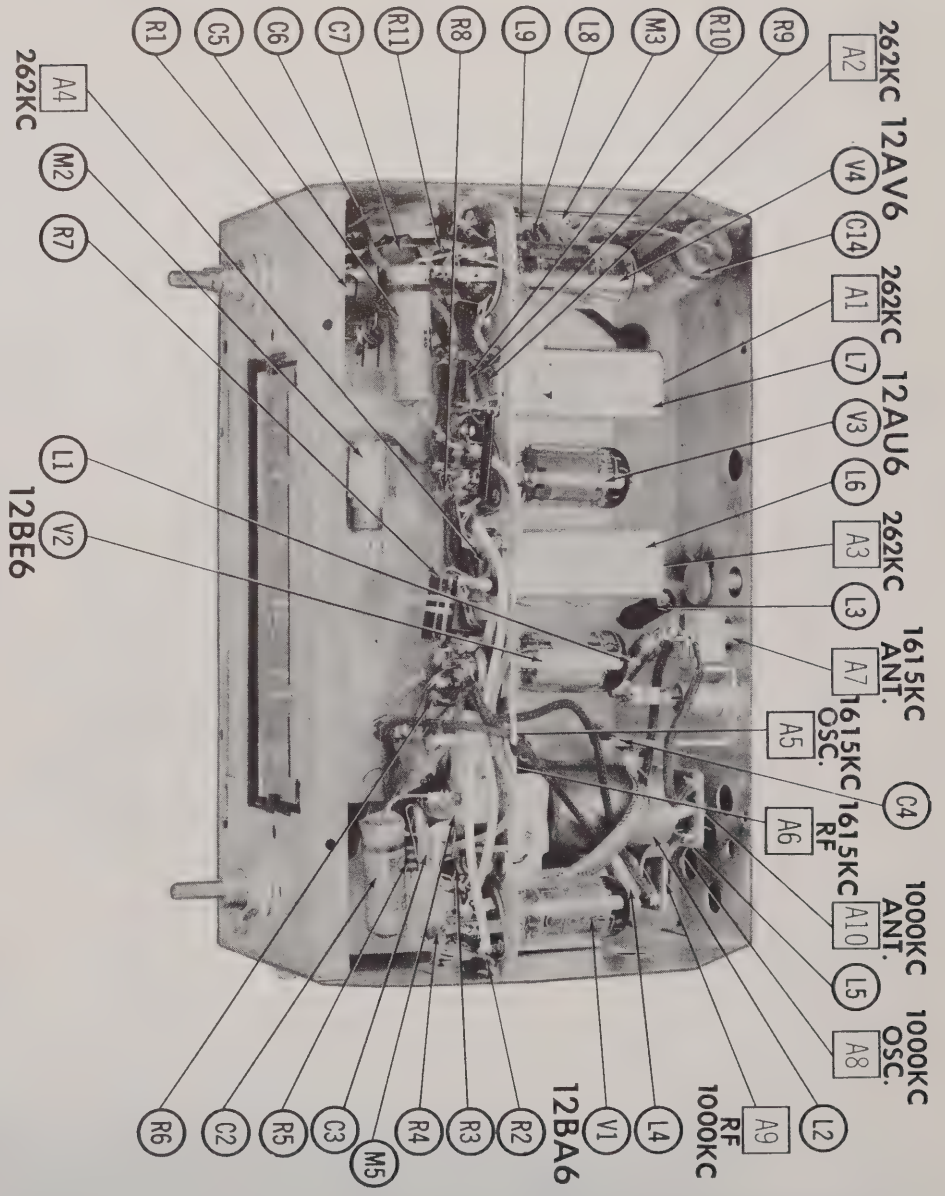
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R2	2.2Meg		1239	BTS-2.2Meg	
R3	10K	1	1174	BTA-10K	
R4	270Ω		1118	BTS-270	
R5	330K		1229	BTS-330K	
R6	22K		1215	BTS-22K	
R7	15K	2	1277	BTB-15K	
R8	270Ω		1118	BTS-270	
R9	1Meg		1235	BTS-1Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R10	47K		1219	BTS-47K	
R11	6.8Meg		1245	BTS-6.8Meg	
R12	220K		1227	BTS-220K	
R13	220K		1227	BTS-220K	
R14	330Ω	1	1156	BW1-330	
R15	1800Ω	2		BW2-1800	Note 1
R16	15K	1	1253	BTA-15K	

Note 1: Mfgr. states to replace with their part #1171 and 1167 in parallel.

MAIN CHASSIS



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT ②1.8A	414VCT ②.048A			6065		P-2978	P-6489	22R52	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7800Ω	3-4Ω	6063	Z1002	A-2936	A-3852	22S87	S-15X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6" X 9"	PM	3-4Ω	7267838	69A2	238S1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	DELCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coupling Coil	.6Ω		7255738	19-1005		4612	9 Microhenries
L2	Ant. Coil	10Ω		7258914				
L3	RF Choke	4.4Ω		7240251	19-6033			
L4	RF Coil	10Ω		7258914				
L5	Osc. Coil	1.1Ω	4.6Ω	7260499				
L6	Input IF	44Ω	44Ω	1219508	16-6752	BC-350	12-H1	
L7	Output IF	33Ω	33Ω	1218726	16-6754	BC-354	12-H6	
L8	Fil. Choke	0Ω		1217846				
L9	Fil. Choke	0Ω		1217846				
L10	Vib. Hash Choke	.1Ω		7267459				

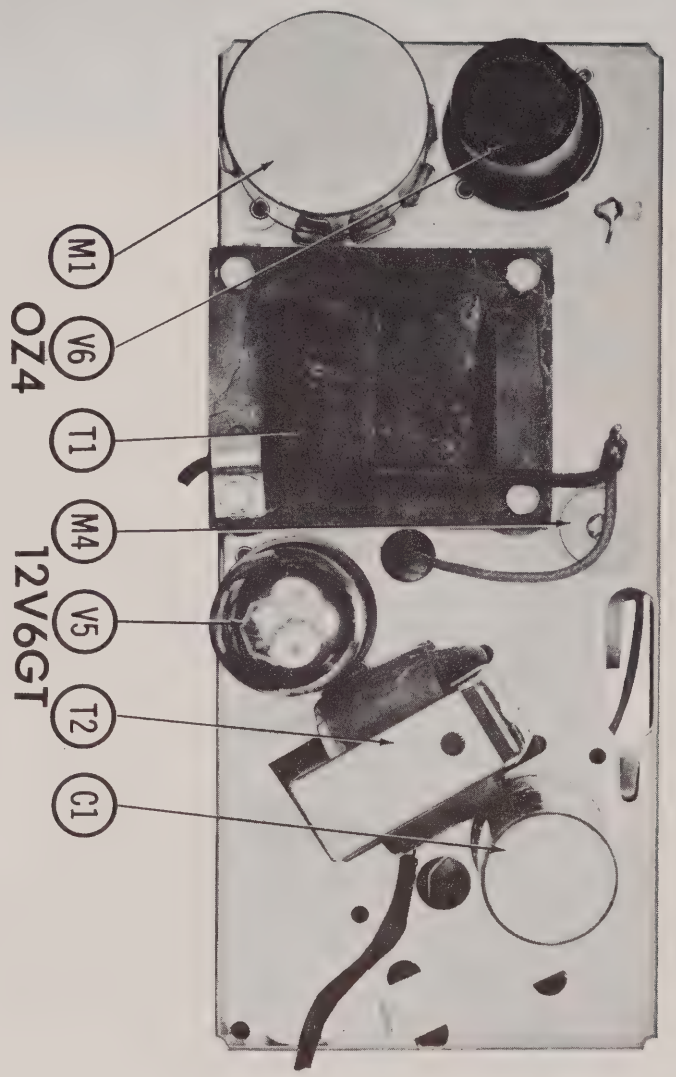
VIBRATOR

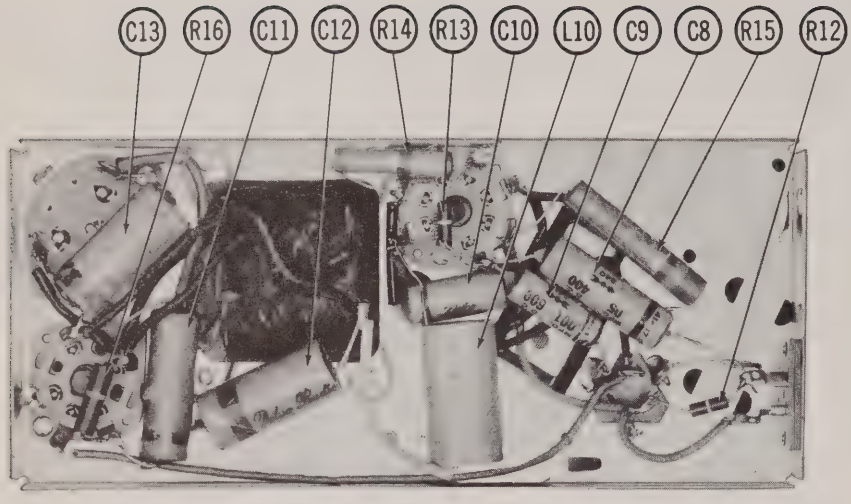
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115∿	7265528	6330	G883	6330	

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M2	Dial Light		#1891
M3	Spark Plate	1220682	12.6V Lead.
M4	Spark Plate	1217848	Filament
M5	Trimmer Cap.	7242454	Dual: Osc. (A5), RF (A6)
A7	Trimmer Cap.	7267443	Ant.
	Knob	7267412	Tone
	Knob	7267414	On-Off-Volume & Tuning
	Knob	7267477	Dummy
	Dial	7267465	

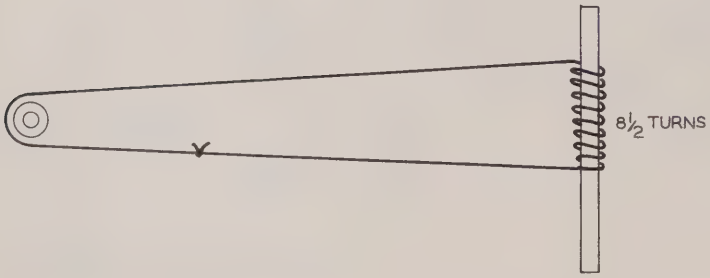
POWER SUPPLY TOP VIEW





POWER SUPPLY BOTTOM VIEW

TUNING SLUGS SET AT LOW FREQUENCY END



DIAL CORD STRINGING

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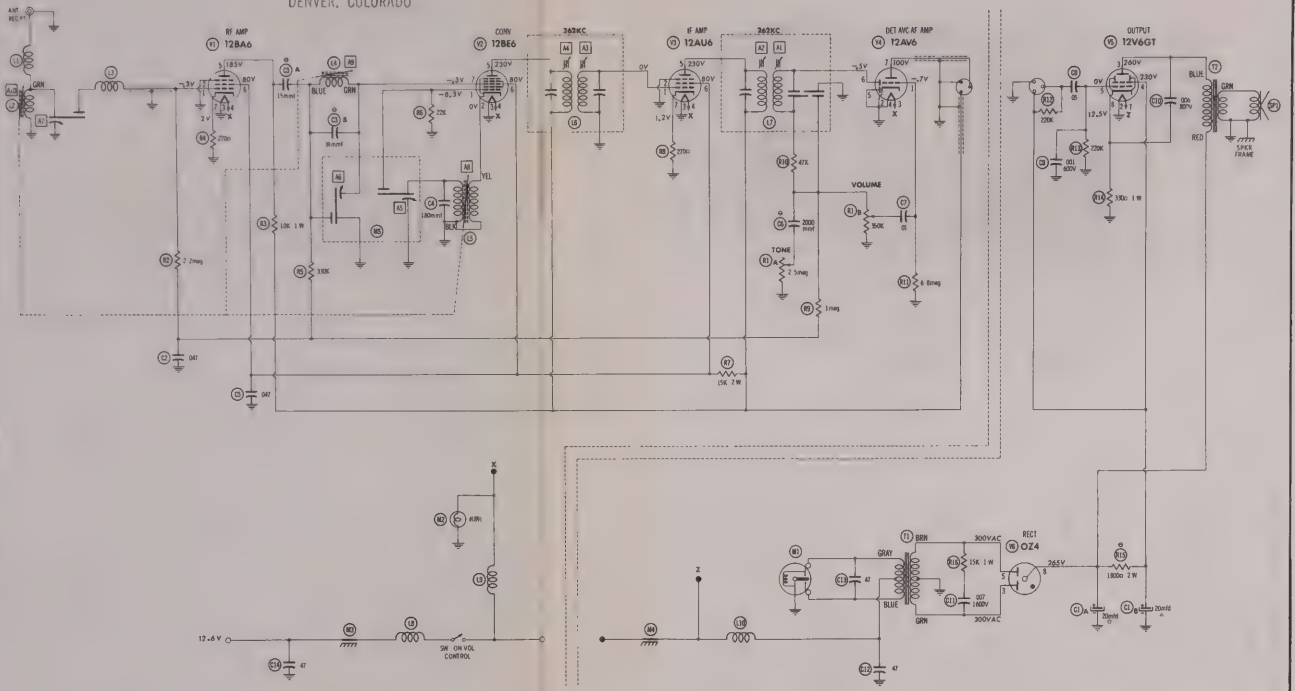

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BA6	3 5MEG	0Ω	0Ω	1.7Ω	1 12K	1 7K	270Ω	
V2	12BE6	22K	1.1Ω	0Ω	1.7Ω	1 1800Ω	1 7K	1 7MEG	
V3	12AU6	33Ω	0Ω	0Ω	1.7Ω	1 1800Ω	1 7K	270Ω	
V4	12AV6	6 8Meg	0Ω	1.7Ω	0Ω	0Ω	400K	1 220K	
V5	12V6GT	NC	0Ω	1 410Ω	1 1800Ω	220K	NC	1.7Ω	330Ω
V6	0Z4	0Ω	NC	420Ω	NC	390Ω	NC	22K	

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured resistance are from socket pin to common negative.
4. Battery voltage maintained at 12 8 volts for voltage readings.
5. Minimum tolerance on components values makes possible a variation of ± 10% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

1 MEASURED FROM PIN 8 OF V6
NC NO CONNECTION

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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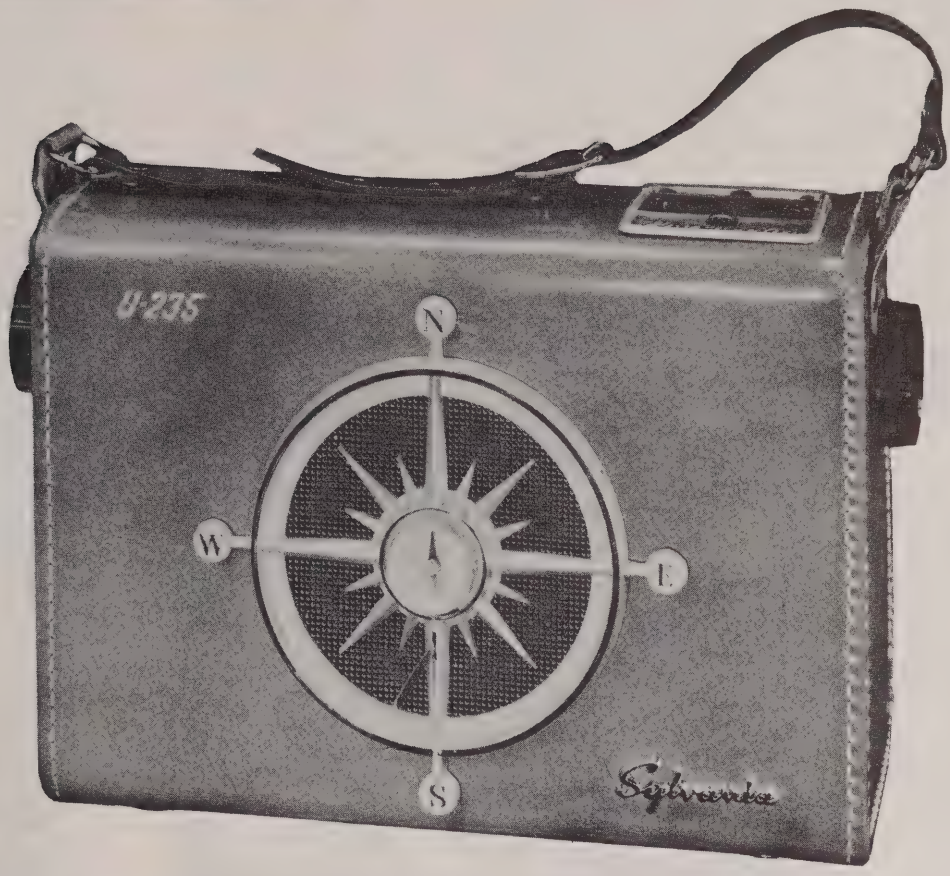
SYLVANIA MODEL
3401 (Ch. 1-612-1)



SYLVANIA MODEL
3401 (Ch. 1-612-1)

TRADE NAME	Sylvania Models 3401BG, 3401TA (Ch. 1-612-1)
MANUFACTURER	Sylvania Electric Prod., Inc., Radio & Tel. Div., 254 Rano St., Buffalo 7, New York
TYPE SET	Three Power Portable AM Receiver With Geiger Counter
TUBES (Five)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output, VG18 Geiger Tube
POWER SUPPLY	105-125 Volts AC-DC (or) 3 Volts "A" Supply & 90 Volts "B" Supply
RATING	.14 Amp. @ 117 Volts AC (or) 170MA @ 3 Volts DC & 14MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540KC-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455KC (400~ mod.)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	Tune to 1500KC signal.	"	A6	"
4.		"	600KC	Tune to 600KC signal.	"	A7	Adjust for maximum output while rocking tuning gang.

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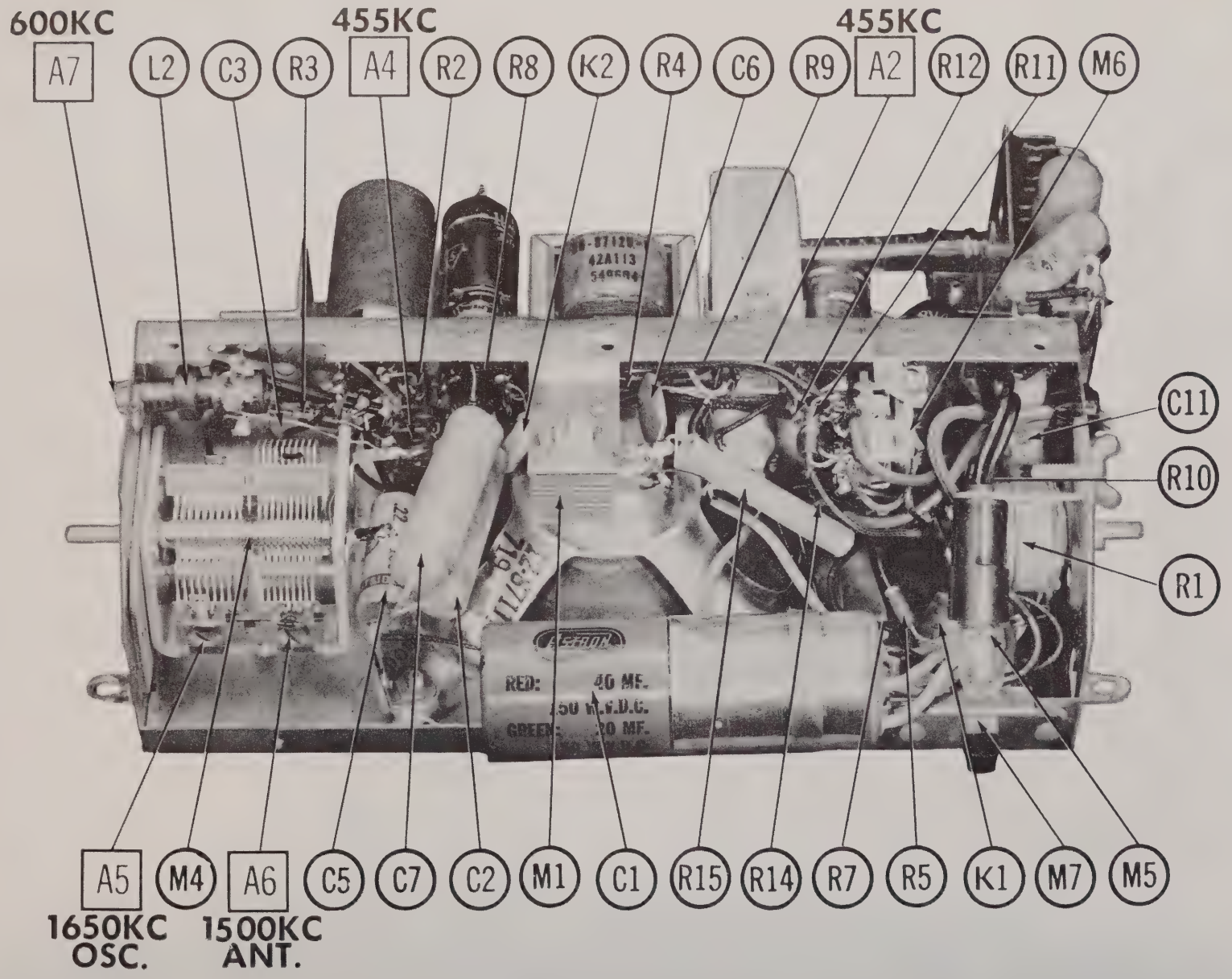


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det.-AVC-AF Amplifier	1U5	

ITEM No.	USE	TYPE	NOTES
V4	Output	3V4	
V5	Geiger Tube	VG18	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	161-4022	PR4-220		WQ349			R1378 *
B	20	150							
C	20	150							
D	100	25							

* Non Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	400	169-0021	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C3	10000		168-0002D	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C4	1000		166-1000P	BPD-001	D6-103	TP52	GP-1000	UC-521	5HK-D1	
C5	.22	100	169-0036	P288N-22		CUB2P22		GEM-2022	2TM-P22	
C6	10000		168-0002D	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C7	.047	400	169-0021	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C8	.1	600	160-0601	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C9	100		166-0100P	S1100	D6-101	TP34	GP-100	UC-531	5GA-T1	
C10	.022	200	169-0022	BPD-02	DF-203	CUB4S22	ED-02	GEM-4122	2TM-S22	
C11	.033	400	160-06133	BPD-03	DF-303	CUB6S33		GEM-6133	6TM-S33	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	152-0033	AB-70	A47-1Meg-Z	Q13-137	US53	Volume
B	Shaft		Not Req.	AK-3	FS3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	KB-2	SWE-20	76-2	US-27	Attach to R1A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SYLVANIA PART No.	IRC PART No.	
R2	100K		181-0104	BTS-100K	
R3	15K		181-0153	BTS-15K	
R4	3.3Meg		181-0335	BTS-3.3Meg	
R5	2200Ω		181-0222	BTS-2200	
R6	1Meg		181-0105	BTS-1Meg	
R7	270Ω		181-0271	BTS-270	
R8	27Ω		181-0270	BTS-27	
R9	270Ω		181-0271	BTS-270	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SYLVANIA PART No.	IRC PART No.	
R10	1800Ω		181-0182	BTS-1800	
R11	270Ω		181-0221	BTS-220	
R12	330Ω		181-0331	BTS-330	
R13A	1075Ω	6	187-0040		
R13B	1075Ω				
R14	2200Ω		181-0222	BTS-2200	
R15	68Ω	2	189-0060		

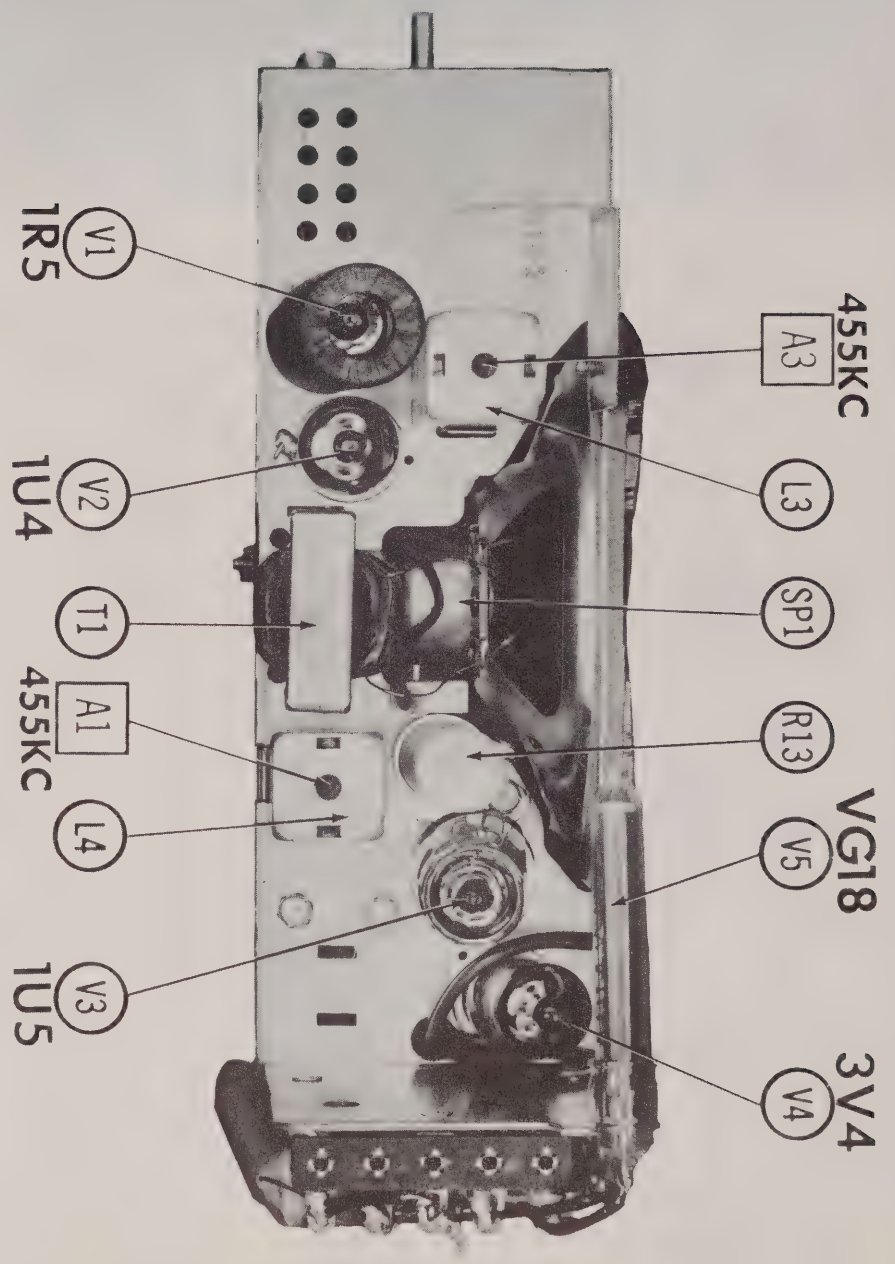
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	8300Ω	3-4Ω	143-0015		A-2998 ①	A-3329 ①	24S49 ①	S-11X ①	① Bend Ears Down To Fit.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	RCA TYPE No.	
SP1	4"	PM	3-4Ω	539-0411	4A07	223S1	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SYLVANIA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Stick	1.4Ω		581-0007				
L2	Osc. Coil	1.5Ω	8Ω	113-0034				
L3	Input IF	32Ω	32Ω	121-0028	16-6758	BC-352	12-C1	
L4	Output IF	32Ω*	32Ω	122-0028		BC-358		* Tapped @ .5Ω

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA	
K1	Detector-Audio Circuit	10Meg, 4.7Meg, 3.3Meg, 1Meg, 150MMF, 150MMF, 2000MMF, 5000MMF, 10000MMF	190-0010	Aerovox Centralab Sprague	PA521 PC-165 DP-1
K2	IF Grid Filter	3.3Meg, 1000MMF	190-0011		

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA: SYLVANIA PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.060A	517-0012	1386	RS065Q	6S65	8J1	65	

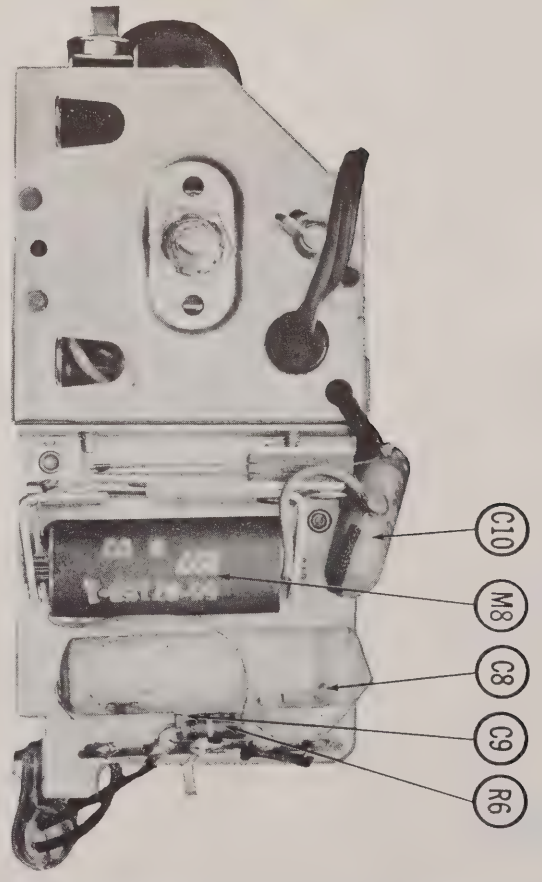
BATTERIES

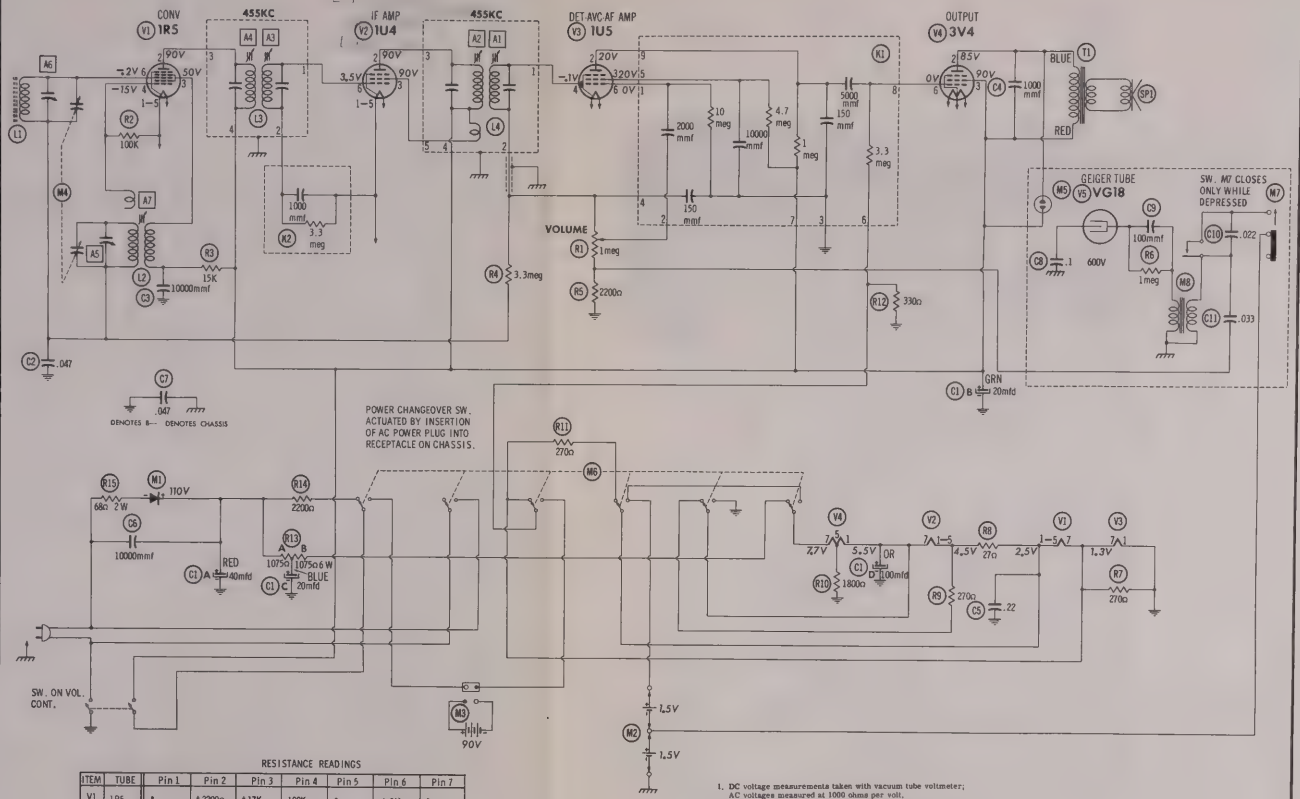
ITEM No.	VOLTAGE	SYLVANIA PART No.	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
M2	1½V "A"		950			2R			Requires 2 in series
M3	90V "B"			479			P60		

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M4	Tuning Cap.	170-0021	2 Gang (16-265MMF, 19-135MMF)
M5	Lamp	611-0151	NE-51
M6	Switch	573-0013	AC-DC-Battery (Plug actuated rotary type)
M7	Switch	571-0012	Geiger Counter (SPST Push type)
M8	Transformer	141-0069	Geiger Counter , includes vibrator assy.
	Case	814-0002	Model 3401TA
	Case	814-0003	Model 3401BG
	Case	822-0015	"A" Battery
	Compass	818-0062	
	Knob	742-0004	Tuning
	Knob	742-0005	On-off-volume

CHASSIS END VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	*	†2200Ω	†17K	100K	*	4.3Meg	*
V2	1U4	*	†2200Ω	†2200Ω	TP	*	3.3Meg	
V3	1U5	*	†1Meg	†4.7Meg	1Meg	0Ω	10Meg	*
V4	3V4	*	†2800Ω	†2200Ω	TP	*	3.3Meg	*

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M4.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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WESTINGHOUSE MODELS H-562P4, A, H-563P4, A, H-564P4, A, H-565P4 (Ch. V-2268-1, -2, -3, -4)

PROPERTY OF
L. E. PLANKENSHIP

WESTINGHOUSE MODELS H-562P4, A, H-563P4, A, H-564P4, A, H-565P4 (Ch. V-2268-1, -2, -3, -4)

WESTINGHOUSE MODELS H-562P4, A, H-563P4, A, H-564P4, A, H-565P4 (Ch. V-2268-1, -2, -3, -4)

TRADE NAME	Westinghouse Models H-562P4,H-563P4,H-564P4,H-565P4 (Ch. V-2268-1,-2), H-562P4A,H-563P4A,H-564P4A (Ch. V-2268-3,-4)
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.
TYPE SET	Battery Operated Portable AM Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det-AVC-AF Amp., 3V4 Rectifier

POWER SUPPLY -- 1.5Volts "A" Supply & 67.5Volts "B" Supply RATING--245MA@1.5Volts DC & 8MA@ 67.5Volts DC
TUNING RANGE—BROADCAST 540KC - 1625KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to antenna stator lug on tuning gang. Low side to chassis.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1625KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal.	"	A6	"

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

WESTINGHOUSE
MODEL H-562P4

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det-AVC-AF Amp.	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	10	90	V-6321-4	SRE150V10	BBR10-90	TC42			R2098*

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	10000		215V111A03	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	Note 1
C3	10000		215V111A03	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	Note 1
C4	1500		215V111A52	BPD-0015	DD-152	K071	ED-0015	DC5215	5HK-D15	Note 2
C5	3.3		217V013A39	NP0-S13.3	TCZ-3R3	TZ06	TCO-3.3	ZT-5533	5TCCB-V33	Note 3
C6	2200		215V112A22	DI-0022	D6-222	K073	ED-0022	UC-5222	5GA-D22	Note 4

Note 1: Mfgr's. equivalent part no. R2CC63Z5Z103P.
Note 2: Mfgr's. equivalent part no. R2CC61Z5Z152P.
Note 3: Mfgr's. equivalent part no. V-8693-3396.
Note 4: Mfgr's. equivalent part no. R2CC62Z5Z222P.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2Meg	½	270V004M01					Volume

RESISTORS

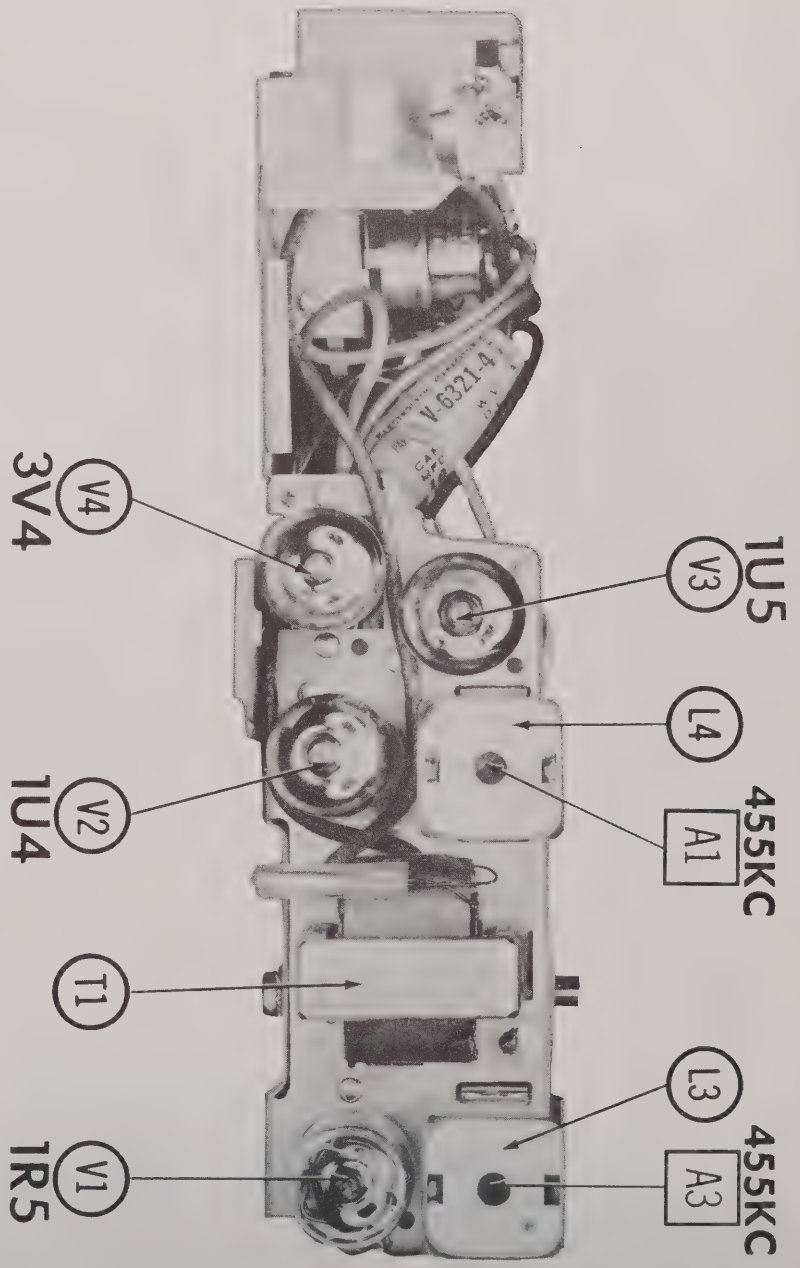
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Westinghouse PART No.	IRC PART No.	
R2	100K		250V231A04	BTS-100K	
R3	15K		250V231A53	BTS-15K	
R4	4.7Meg		250V234A75	BTS-4.7Meg	
R5	3.3Meg		250V233A35	BTS-3.3Meg	
R6	390Ω		250V223A91	BTS-390	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	10K	3-4Ω	430V004M01			A-3329 ①			① Use original frame.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	QUAM PART No.	RCA TYPE No.	
SP1	3½"	PM	3-4Ω	570V001M01	3A07 ①		① Cut mounting holes to fit.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Westinghouse PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	.6Ω		310V003M01				
L2	Osc. Coil	1.6Ω	11Ω	230V002M01				
L3	Input IF	25Ω	25Ω	V-11925-1				
L4	Output IF	25Ω	25Ω	V-11925-1				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	Detector-Audio Circuit	3.3Meg, 4.7Meg, 1Meg, 150MMF, 150MMF, 1000MMF, 5000MMF	V-15692-1	Aerovox PA631

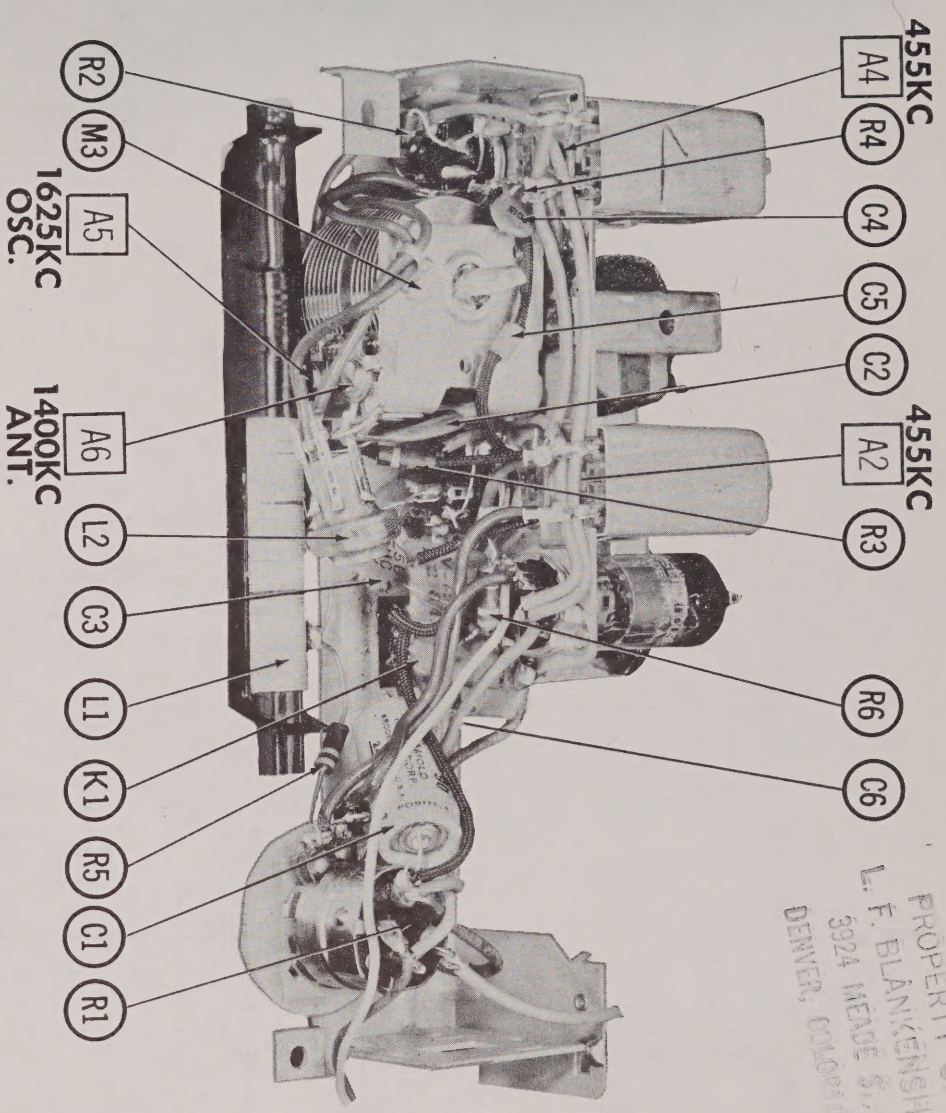
BATTERIES

ITEM No.	VOLTAGE	Westinghouse PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	1.5V "A"		950			2R			
M2	67.5V "B"			477			P45		

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M3	Tuning Cap.	330V001M01	2 Gang (13-210MMF, 19-120MMF)
M4	Switch	756V001M01	Battery Saver (SPDT-Slide Type) Used in chassis V-2268-2 only.
	Cabinet	513V003M01	Model H562P4.
	Cabinet	513V003M02	Model H563P4.
	Cabinet	513V003M03	Model H564P4.
	Cabinet	513V003M05	Model H565P4.
	Cabinet	513V003M06	Model H562P4A.
	Cabinet	513V003M07	Model H563P4A.
	Cabinet	513V003M08	Model H564P4A.
	Knob	550V007M01	Tuning, Models H562P4, H562P4A.
	Knob	550V007M02	Tuning, Models H565P4.
	Knob	550V007M03	Tuning, Models H564P4, H563P4, H563P4A, H564P4A.
	Knob	550V008M01	On-Off-Volume, Models H562P4, H562P4A.
	Knob	550V008M02	On-Off-Volume, Model H565P4.
	Knob	550V008M03	On-Off-Volume, Models H563P4, H564P4, H563P4A, H564P4A.
	Knob	550V006M02	Battery Saver, Models H563P4, H564P4, H563P4A, H564P4A.

CHASSIS—BOTTOM VIEW



PROPERTY OF
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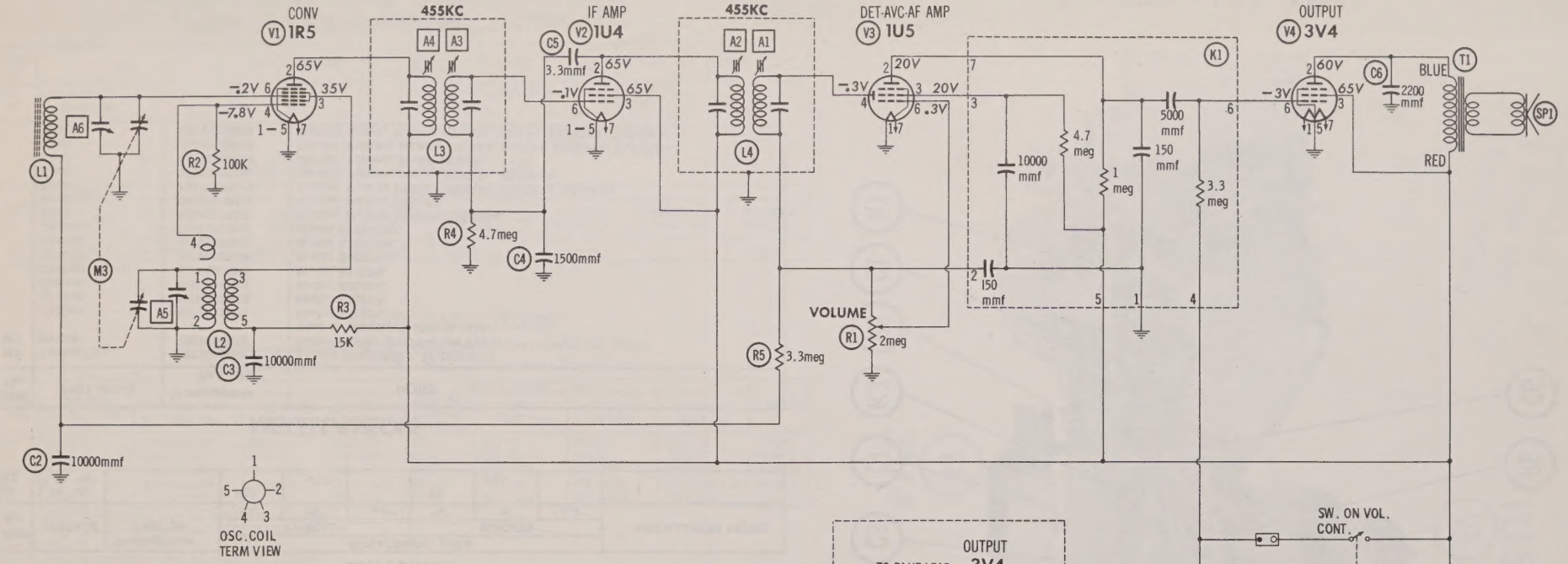

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	†25Ω	†15K	100K	•	5Meg	•
V2	1U4	•	†25Ω	†0Ω	NC	•	4.7Meg	•
V3	1U5	•	†1Meg	†4.7Meg	2Meg	TP	2Meg	•
V4	3V4	•	†400Ω	†0Ω	NC	•	3.3Meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM POSITIVE SIDE OF C1.
NC NO CONNECTION.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter;
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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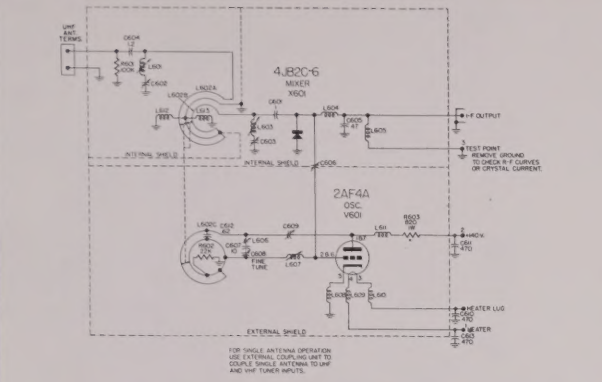
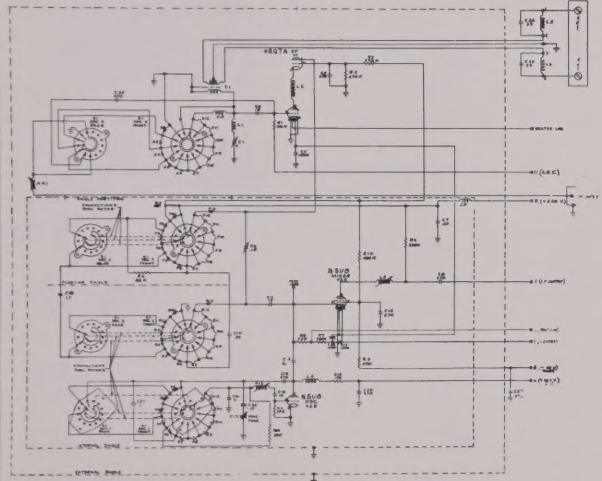


NO. 700556 UHF TUNER



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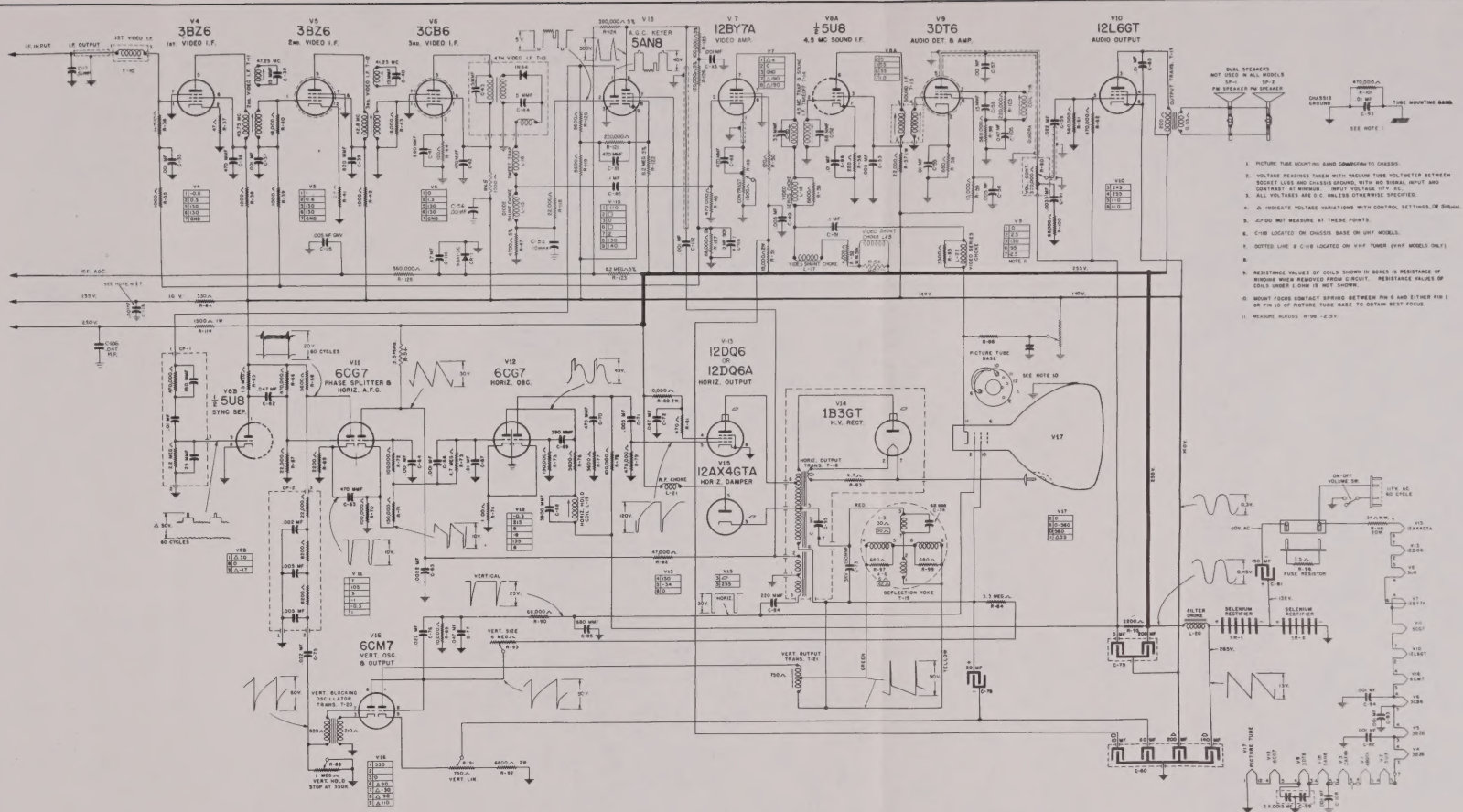
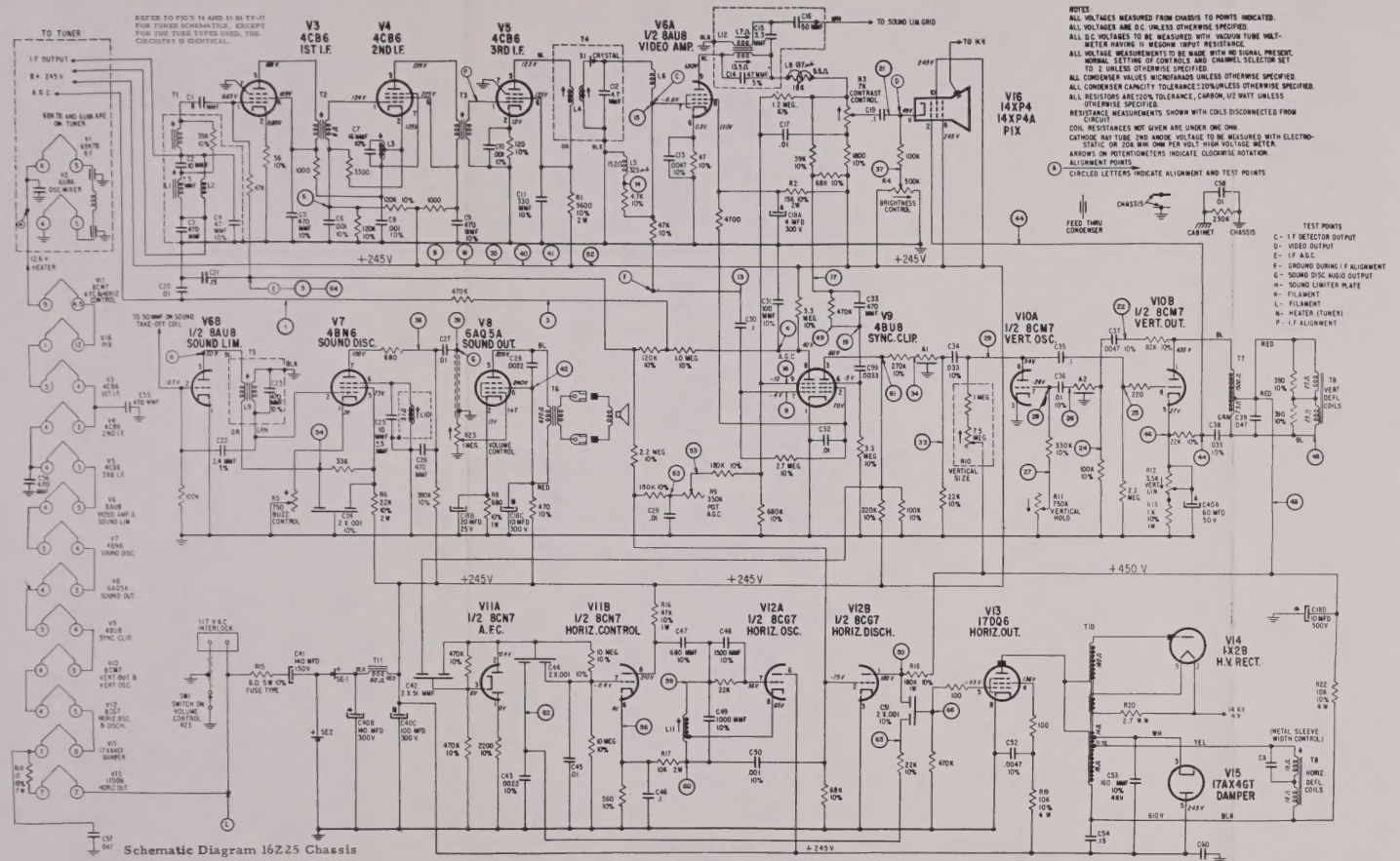


SENTINEL CHASSIS
(74 SERIES)
U74-01AA

U74-02AA
V74-01AA
V74-02AA

SCHEMATIC COURTESY OF THE SENTINEL RADIO COMPANY


TO TUNER
V3 4CB6 1ST I.F.
V4 4CB6 2ND I.F.
V5 4CB6 3RD I.F.
V6A 1/2 8AU8 VIDEO AMP.
V6B 1/2 8AU8 SOUND LIM.
V7 4BN6 SOUND DISC.
V8 6AQ5A SOUND OUT.
V9 4BU8 SYNC. CLIP.
V10A 1/2 8CM7 VERT. OSC.
V10B 1/2 8CM7 VERT. OUT.
V11A 1/2 8CN7 A.F.C.
V11B 1/2 8CN7 HORIZ. CONTROL
V12A 1/2 8CG7 HORIZ. OSC.
V12B 1/2 8CG7 HORIZ. DISCH.
V13 17D06 HORIZ. OUT.
V14 1X2B H.V. RECT.
V15 17AX4GT DAMPER
V16 14XP4 14XP4A PIX
+245V
+450 V
NOTES.
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL D.C. VOLTAGES TO BE MEASURED WITH VACUUM TUBE VOLT-METER HAVING 11 MEGOHM INPUT RESISTANCE.
ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT, NORMAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO 2 UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER VALUES MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL CONDENSER CAPACITY TOLERANCE ±20% UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS ARE ±20% TOLERANCE, CARBON, ½ WATT UNLESS OTHERWISE SPECIFIED.
RESISTANCE MEASUREMENTS SHOWN WITH COILS DISCONNECTED FROM CIRCUIT.
COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.
CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTRO-STATIC OR 20K MIN OHM PER VOLT HIGH VOLTAGE METER.
ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
ALIGNMENT POINTS.
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS
TEST POINTS
C- I.F DETECTOR OUTPUT
D- VIDEO OUTPUT
E- I.F. A.G.C.
F- GROUND DURING I.F ALIGNMENT
G- SOUND DISC AUDIO OUTPUT
H- SOUND LIMITER PLATE
K- FILAMENT
L- FILAMENT
N- HEATER (TUNER)
P- I.F ALIGNMENT

Schematic Diagram 16Z25 Chassis

ZENITH MODELS	CHASSIS
Z1510L	16Z25
Z1511B	16Z25
Z1512J	16Z25

SCHEMATIC COURTESY OF ZENITH RADIO CORPORATION

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